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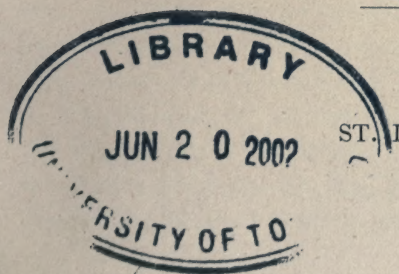
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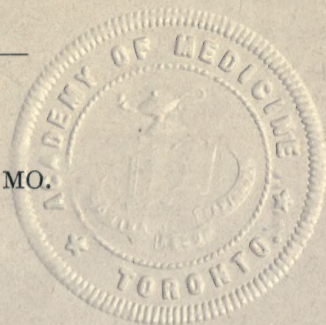
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ST. LOUIS, MO.  
1901.





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ORIGINAL ARTICLES.

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RESULTS OF THE HISTOLOGICAL EXAMINATION  
OF ONE OF THE BLIND AND APPARENTLY  
INOFFENSIVE EYES ENUCLEATED  
BY DR. S. C. AYRES.

BY ADOLF ALT, M.D.,  
ST. LOUIS, MO.

(With Micro-Photographs.)

IN the July (1900) number of this JOURNAL appeared an article by Dr. S. C. Ayres with the title: "Observations on Some Blind, but Quiet and Apparently Inoffensive Eyes; Do They Produce a Pseudo-Sympathetic Inflammation?" I promised to give the description of some of these eyes, but can only find one of them, which Dr. Ayres kindly sent me for examination, that of his Case I., G. W. D. In his report of the case Dr. Ayres stated that the eye which he enucleated was shrunken, but not tender, except on firm pressure, and that ossification of the choroid was detected. The eye was duly hardened and examined.

Macroscopically it was seen that the pupillary margin of the iris was *in toto* adherent to the crystalline lens. Behind the lens a dense cyclitic membrane stretched across the interior of the eyeball, a small distance behind the posterior lens-



capsule, to which it did not seem to be attached, except just in the center. The retina was totally detached and ran forward from the optic nerve entrance in the shape of a thick chord towards the cyclitic membrane into which it merged. Bone formation was seen to cover the whole of the inner surface of the choroid.

On microscopic examination the circular synechia of the pupillary margin of the iris is especially conspicuous. The tissue of the iris containing the sphincter muscle is slightly folded backwards upon the anterior lens-capsule, where the synechia is found. Into the pupillary space an anterior polar cataract of the usual appearance is projecting. Iris and ciliary body are largely infiltrated with round cells, their blood-vessels hyperæmic.

In the lamellar tissue of the polar cataract numerous deposits of amorphous lime are found. The remainder of the lens shows cataractous degeneration throughout. The nucleus is so large that there is hardly any cortical substance. At the base of the anterior polar cataract there are large spots in which the lens-epithelium has proliferated enormously. The whole of the posterior lens-capsule is lined with an almost unbroken layer of epithelial cells.

The cyclitic membrane consists of a dense fibrous tissue containing many nests of pigmented cells and a great deal of free pigment. In numerous places there are small round-cell accumulations which have taken up the hæmatoxyline stain with much more avidity than the surrounding tissue, and are therefore probably of very recent date. Their arrangement gives the impression of a septic inflammation, yet I have not succeeded in finding any microbes in, or in the neighborhood of, these round-cell aggregations. There are also numerous deposits of amorphous lime and some patches of bone-tissue in the cyclitic membrane. Posteriorly, the retina is attached to this membrane. It is undergoing atrophy and its histological conditions are in no way remarkable, except for round-cell aggregations and deposits of amorphous lime, similar to those found in the cyclitic membrane.

The most interesting part of this eye is the bone formation, which is very extensive.

The bone-tissue, with all the characteristics of true bone,



lies, as far as can be seen, on the inner surface of the lamina vitrea of the choroid. This latter is not always visible, but has in places evidently given way to the pressure from the superimposed tissues. In numerous places it is found as a wavy double-contoured line (see Fig. 1). This waviness shows that it must have been ruptured in places, and been contracted by the superimposed shrinking tissue.

The bone-tissue is in most places separated from the inner surface of the choroid by a smaller or larger amount of a lamellated dense connective tissue which contains a great deal



FIG. 1.

of amorphous lime, and numerous pigment patches. A similar tissue covers the bone-tissue on the inner surface.

The bone-tissue is not equally thick in all of those parts of the eye which lie behind the cyclitic membrane, but varies from one to four and five layers in the transverse section. Where the bone-tissue is thickest, its interspaces are filled with marrow (see Fig. 2). This, I think, shows that the bone-tissue formation has been going on for a very long time, and is, if I remember rightly, only the second time that I have found fat-tissue in intraocular bone-tissue.

Contrary to the usual experience, when there is bone formation, the choroid is in some parts extremely thick,



eight and ten times thicker than in the norm. This thickness is due in part to a direct increase of tissue in the outer layers of the choroid, the result of former inflammations (choroiditis hypertrophica). In other parts this thickness is produced by a two-fold cell-infiltration. The one form is that of small inflammatory foci, as we usually see it when it is due to the presence of microbes, although I found none here. In the other form of infiltration the round cells are much larger and are arranged in more or less parallel rows. I know nothing



FIG. 2.

about the source of these large cells, unless they can be taken to be osteoblasts. (See Fig. 3.)

The optic nerve shows a large increase in connective tissue and atrophy of the nerve-fibres. It and the retina are, however, largely infiltrated with round cells, denoting a more recent inflammatory process. This inflammatory process is also particularly pronounced in the walls of the inter-vaginal space, that is in the pia mater and arachnoid. Here I find again numerous small round-cell foci aside from the general round-cell infiltration and the proliferation of endothelial cells.

Some of the posterior ciliary nerves, on their way through the sclerotic, also show round-cell infiltration.



In general, then, it seems clear that while this eye clinically appeared to be quiet and apparently inoffensive, it had all the qualities in it which seem necessary to induce sympathetic in-



FIG. 3.

flammation in the other eye, and I think this, together with the fact that after the enucleation the other eye improved, points to it that the pathological conditions in the second eye were really of a sympathetic nature, and not only pseudo-sympathetic.

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#### PAMPHLETS RECEIVED.

“Ophthalmic Memoranda,” by G. E. de Schweinitz, M.D.

“The Histology of the Lacrymal Gland in Chronic Daeryocystitis,” by D. E. de Schweinitz, M.D.

“Papilloma of the Plica Semilunaris,” by G. E. de Schweinitz, M.D.

“Concerning the Substitutes for Enucleation of the Eye,” etc., by G. E. de Schweinitz, M.D.

“The Comparative Value of Enucleation and the Operations Which Have Been Substituted for It,” by G. E. de Schweinitz, M.D.

“A Report of Cases,” by E. C. Ellett, M.D.

“An Auxiliary Skiascope,” by E. C. Ellett, M.D.



## A CASE OF QUININE AMAUROSIS.

BY ADOLF ALT, M.D.,

ST. LOUIS, MO.

MISS E. S., 27 years of age, presented herself at the Eye and Ear Clinic of the St. Louis Mullanphy Hospital September 26, 1900, seeking relief from a medicamentous mydriasis, which some general practitioner had produced some time previously and which she thought was all that ailed her eyes at that date.

She gave the following history: On August 27th she was ordered to take muriate of quinine on account of an attack of malarial fever. Starting at 4 o'clock in the afternoon, she took 6 grains every two hours till 10 o'clock (24 grains), then 4 grains every two hours until she had taken 40 grains in all.

After the third dose (18 grains at 8 o'clock) she experienced violent photopsiæ, a phenomenon which was followed by the gradual loss of vision, and this apparently affected both eyes to an equal degree. At midnight (28 grains) she could barely recognize the light of the lamp in her room, and at 2 A. M. (32 grains) she was perfectly blind, with not a vestige of light perception left.

In spite of this unfortunate condition, on the next day, the 28th of August, she was ordered to take another 40 grains of quinine in the next thirty-six hours. The total blindness remained unchanged, until on August 30th at 3 P. M. she thought she could perceive the light coming through a transom. From this on, her vision grew very slowly better and better. The improvement was, however, confined to the central vision and her visual fields remained in consequence so small that for about a week she could not go about alone and had to be led. After about two more weeks had passed, she began to be able to read, however only when the book was "right in front of her," yet the print was still "very dazzy."

Now, at her visit at the clinic, two months after the poisoning had taken place, she can read almost as well as ever, only she still sees as if she were looking through a tube.

*Status præsens.*—Both pupils are dilated *ad maximum* and do not respond to light. Vision, R. E.  $\frac{20}{20}$ ; L. E.  $\frac{20}{30}$ ?. The



visual fields are quite considerably reduced, down, up and inwards, especially in the right eye, slightly less so in the left eye. The ophthalmoscope revealed a chalk-white optic papilla in either eye. No arteries could be seen in the right fundus, only two larger veins. In the left eye a few arteries could with difficulty be made out, the visible veins were normal in number but very thin. No examination of the color sense could be made. She was given strychnia internally.

On October 25th I saw the patient again and found the ophthalmoscopic picture about the same, both papillæ being chalky-white. Her vision has now increased in the R. E. to  $\frac{20}{30}$  and in the L. E. to  $\frac{20}{20}$ ?. The visual fields had probably not been changed very much for the better. The right was now upwards  $10^\circ$ ; temporally  $35^\circ$ ; downwards  $5^\circ$ , and nasally  $15^\circ$ . The field of the left eye was upwards  $20^\circ$ ; temporally  $30^\circ$ ; downwards  $30^\circ$ ; nasally  $10^\circ$ .

An attempt to see and examine her again has been unsuccessful since she has gone to work and cannot spare the time; she reports, however, that her vision seems still further improved. From her description the fields of vision do not seem to have become any larger.

The patient had never before experienced any trouble in her vision and was positive in her history of quinine poisoning.

While there have been probably a hundred observations of such cases of quinine amaurosis placed on record since Gruening's first compilation in 1881 (*Knapp's Archives*), but few single observers have seen more than one or two cases of this nature.

It is surely astonishing that in my experience, in a malarial country like ours is, this is the first undoubted case which I have seen of quinine amaurosis. When we consider what an enormous amount of quinine is consumed in the Mississippi Valley, it is quite remarkable that such cases are not more frequent in this district. Yet, it undoubtedly is due to a special idiosyncrasy only that now and then an individual is affected in such a manner. I have often, too, thought it not impossible that of the many cases of atrophy of the optic nerve which are observed here, some might be due to the former habit of many people of "eating" quinine to prevent chills and fever.

I particularly inquired in this case whether before the blind-



ness came on, the patient had any peculiar color perceptions, but she had not perceived any. Once when I had taken 60 grains of muriate of quinine inside of an hour I had the most beautiful green vision that can be imagined. Everything was in a bright emerald hue.

This symptom does, as far as I know, not seem to have been observed by others. Even de Schweinitz, in the exhaustive chapter on toxic amblyopias in the "System of Diseases of the Eye," Vol. IV. (Norris and Oliver), does not mention any chromatopsia from the ingestion of quinine.

Among others this same author, and more recently W. A. Holden ("Transactions of the American Ophthalmological Society," 1898), have studied the pathology of quinine amaurosis experimentally and very exhaustively. From these studies it seems that quinine at first produces a contraction of the blood-vessels with consequent malnutrition of the retina and destruction of the ganglionic cells, which in turn is followed by an ascending atrophy of the optic nerve-fibres.

Luckily a large number of these cases of quinine amaurosis seem to regain at least a certain amount of vision. It is usually the central vision which is preserved and the field in most cases seems to remain reduced to a horizontal ellipse, as in the case here related.\*

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#### PAMPHLETS RECEIVED.

"A Series of Cases of Malarial Keratitis, with a Report of the Blood Examinations," by E. C. Ellett, M.D.

"The Relative Value of Instruments Used for Keratometry," by A. S. McConachie, M.D.

"A Valuable Subjective Method of Measuring Astigmatism," by E. Jackson, M.D.

"Misapprehensions Regarding the Dioptric Eye, and Its Uses," by E. Jackson, M.D.

"The Distance Between Surgeon and Patient for Accurate Skiascopy," by E. Jackson, M.D.

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\*For similar cases see this JOURNAL, Vol. XIV., page 1, one by H. D. Bruns, and Vol. XIV., page 13, one by S. C. Ayres; also Vol. XI., page 246, one case by J. H. Claiborne.



COMBINED SCLEROTOMY AND IRIDECTOMY.\*

By PROF. L. DE WECKER,

PARIS, FRANCE.

*Translated by Adolf Alt, M.D., St. Louis, Mo.*

IT will soon be half a century (1857) since iridectomy, practiced by von Graefe for the cure of glaucoma, has saved or saves thousands of patients from an incurable blindness, and yet, we can hardly feel authorized to call this surgical intervention a sovereign and undisputed means of curing glaucoma.

I mention here as a curiosity only, or rather an eccentricity, the assertion made by some enemies of iridectomy who dare to maintain that iridectomy has not succeeded in restoring vision to one single glaucomatous eye (Schoen), yet we have been forced to acknowledge—and von Graefe himself has done it—that in a certain, fortunately a very small, number of cases, the iridectomy can exert a destructive instead of a curing influence upon the vision of glaucomatous eyes.† On the other hand, have not the most enthusiastic supporters of this wonderful discovery acknowledged that its curative effect is weakened after a few years and that a new intervention in such cases is not always capable of arresting the progress of the slowly progressing disease which leads to blindness?

Finally, must we not actually contend with some colleagues who would like to eliminate completely all surgical intervention in the treatment of chronic simple glaucoma?

More than forty years of clinical experience, therefore, have not succeeded in establishing on a firm basis the action of the iridectomy in the cure of glaucoma, and we have not

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\**Annales d'Oculistique*, November, 1900.

†We may cite the case of one of our colleagues. One of our most distinguished confrères, on whom the whole arsenal of anti-glaucomatous operations has been allowed to play—iridectomy, anterior sclerotomy, posterior sclerotomy, Hancock's section, enucleation of the first lost eye, extirpation of the superior cervical ganglion of the sympathetic nerve—has unfortunately not been rescued from total blindness.



yet arrived at an indisputable explanation of the manner in which this surgical intervention acts.\*

It seems to me that in order to arrive at the desirable end to be able to assign to the surgical intervention in glaucoma a sure and perfect action, it would first be indispensable to establish firmly:

1. How must an iridectomy or a sclerotomy be executed in order to produce the best possible and certain results?

2. How, in a case of direct failure or when the success primarily obtained is lost after a certain time, can we with certainty remove the doubt that this lack of action could be due to an incorrect execution of the operation which has been performed?

Whatever theory they may adhere to, I believe that all clinicians agree in admitting that an iridectomy or a sclerotomy can produce a certain curative effect under the following three conditions: (*a*) That the incision lies in the sclerotic; (*b*) that it is six or eight millimeters long; and (*c*) that any adhesion of the iris to the scar must be religiously avoided.

The objection may be made that these conditions are more difficult to come up to when an acute attack of glaucoma is accompanied by pronounced excess of intraocular pressure, and that just in acute glaucoma it is almost impossible to obtain the three conditions for the exact execution of the operation, especially as far as concerns the adhesion of the iris to the scar. Yet it is well known that just in acute glaucoma the operation, even if executed in the most incorrect manner, has often an absolute curative effect, at least for a certain period of time.

On the other hand, in cases of chronic simple glaucoma with little increase of intraocular tension, the operations aided by the powerful action of miotics, which act but very imperfectly in acute glaucoma, can be executed in the most correct manner and yet have a much less brilliant curative action than is the case with the acute and inflammatory forms of glaucoma.

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\*The modification of the filtration produced by the incision in the sclera is the most generally accepted explanation, but we must still hear from time to time the absurd objection that scars should rather have the tendency to contract than to stretch. And yet, with what difficulties have the surgeons to contend after a laparotomy in order to prevent the stretching of the scar and the formation of a ventral hernia!

To this I shall answer, *that the curative action of the anti-glaucomatous operations is in direct ratio with the increase of the intraocular tension of the eye to be operated on; that this action is nil if there is no morbid increase of pressure, and that the cicatrization of the pericorneal or scleral incision takes place under normal conditions of the tension of the eye.* In acute glaucoma in which this cicatrization goes on under the influence of a pronounced excess of pressure, which often leads to the formation of a cystoid scar, the stretching of the sclerotic may compensate for the lack of correctness in the operation (smallness of incision and adhesions of the iris).

On the contrary, the most perfectly correct operation in a case of chronic simple glaucoma loses its curative action through the small increase in the intraocular tension, since the smaller this increase of tension, the more nearly are the conditions under which the cicatrization takes place in conformity with those in an eye with normal tension. The curative action, therefore, must necessarily correspond with the quantity of increase of pressure which is present in the eye suffering from chronic simple glaucoma. In these cases also the appearance of the scar will be more and more like one in an eye with normal physiological tension.\*

In order to be able to make a correct iridectomy in all kinds of glaucoma, it is necessary to operate under conditions of pressure which are nearly normal. We must, therefore, in order to obtain the desired correctness, put the eye during the performance of the operation in a state of tension which differs the least possible from the physiological pressure, and later on let the cicatrization take place under the glaucomatous excess of pressure, which will finally be counterbalanced by the loss of fluid through the scar.

The iridectomy had hardly been introduced by von Graefe

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\*As much as I have scrutinized the objections made to the filtration theory, even by the most competent observers, they have not convinced me; and I maintain that the clinical facts, especially the action of the anti-glaucomatous operations, are still the best explained by the theory of cicatricial filtration, which shows us why even the worst executed operations may cure acute glaucoma, and how the most correctly executed operations have sometimes no or almost no curative effect in cases of chronic simple glaucoma. I need hardly state that I do not here speak of cases of mistakes in diagnosis in which naturally an iridectomy or sclerotomy can have no curative effect whatever.



as a cure for glaucoma when already at one of the first meetings of the Ophthalmological Society of Heidelberg I heard Alexander Pagenstecher state that there was no operation more difficult of execution than a *correct* iridectomy on an eye suffering from *acute* glaucoma and that he tried to produce the best conditions for the operation by reducing the pressure to a lesser degree by means of a previously made paracentesis (one or two days).

This advice, which was inspired by a very careful clinical observation, did not receive the notice which it deserved. Almost forty years later only my collaborator, Masselon, began to make to the same end the posterior sclerotomy, which a little later was adopted by Parinaud, Priestley Smith and others.

It is an incontestable fact that a posterior sclerotomy when executed six or seven millimeters distant from the corneal margin, even when made with a knife of the width of one millimeter, is the quicker followed even in the hardest glaucomatous eye by a reduction of the pressure to the norm or even below it, if this puncture is immediately followed by a slight massage (Dianoux).

I am far from trying to doubt this effect which I have been able to watch many times in eyes operated on by Masselon and by myself. Still there is another and less easy intervention which I propose for preceding the iridectomy. Posterior sclerotomy when immediately preceding the iridectomy has, I acknowledge it, the very great advantage not to double the surgical intervention; it is not necessary to mention it to the patient, and as far as he is concerned sclerotomy and iridectomy constitute but one and the same operation. For what I propose the patient must be put twice into the operating chair, and, therefore, we must be sure of his entire confidence and have him well in hand. What I fear for my patients in posterior sclerotomy is the wound of the vitreous body,\* be it ever so

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\*In these last years the effort has been made to substitute for the correct expression *vitreous body*, the little euphonic one of *vitreous* in short. The abbreviators in ophthalmology should not stop here. Why not speak of the ciliary, the aqueous, etc. These constituent parts of the eye might, with the same propriety as the vitreous, clamor for the suppression of their body and of their humor. [The same holds good for the abbreviators in the English language.—TRANSLATOR.]

small, and a wound of this part of the eye, which cannot be overlooked, necessarily accompanies every posterior sclerotomy.

In order, then, to avoid every disagreeable surprise which an iridectomy for the cure of glaucoma might bring, and to assure an absolutely correct execution of this operation so that, if the success of the operation does not prove definitive, the operator has at least no reason to blame himself, I advise in all cases in which an anti-glaucomatous iridectomy is to be made, to *precede this operation by an anterior sclerotomy* one or two days before the final operation.

One may object that just in these acute cases an iridectomy, even when badly executed, is curative, and on the other hand that an anterior sclerotomy is very difficult of correct execution under these circumstances. To the first of these objections I answer that if an iridectomy, even an incorrect one, re-establishes vision in an eye attacked by acute glaucoma, there remains still a certain apprehension as to the duration of this salutary action, and when the effect is lost after a few years one must feel a suspicion that this loss of effect is due to a defective execution of the operation. The future will have to teach us whether in reality patients operated on for acute glaucoma will be absolutely free from any relapse of the disease when only correct operations are performed.

It is certainly true that in the absence of an anterior chamber, when my procedure is followed and still more when operating in the manner of Quaglino, the sclerotomy is very difficult of execution. When, however, it is done as a preliminary operation it is not necessary that the sclerotomy, which I make in the lower corneal margin, should comprise a very considerable extent of sclerotic tissue. Provided one succeeds in making with a von Graefe knife or even with mine (only half as large) a puncture and counterpuncture and leaves between them a small bridge, one succeeds easily by means of massage in reducing the tension in one or two days so as to get a good action of the miotics and to be able to make an absolutely correct iridectomy upwards.

This obligatory addition of an anterior sclerotomy to the iridectomy is certainly no simplification, but it will surely



win its way in a shorter or longer time, because it gives the following advantages:

1. It deprives the iridectomy of the dangers which it incontestably presents in a certain number of cases of *recent* glaucoma, and in those in which the disease has already progressed so far that the nasal border of the field of vision threatens to encroach upon the point of fixation.

2. A long experience has shown me that the sclerotomy alone not only removes the danger of the anti-glaucomatous iridectomy, which is finally made after a shorter or longer period, but even constantly enlarges the visual field by forcing back its nasal border from the point of fixation.

3. Finally, when by the combination of the two methods the glaucoma is cured, or the affection is arrested in its progress, one can feel, after an operation performed rigorously *lege artis*, much more safe concerning the future of one's patient; and if, after a certain number of years, the effect of this double surgical intervention should be lost, one has no cause for self-reproach and besides one may reopen the old scars.

What I hope from the combination of these two operations is that the combination of their curative effects, which is an undeniable one for either one when performed alone, will have, besides freeing the iridectomy from its dangers, the very valuable effect of accentuating its curative influence and of rendering it more durable.

Actually, I can already affirm that in cases of very far progressed glaucoma in which formerly I should not have dared to make an iridectomy and should have simply made a sclerotomy, the combination of these two operations has given me better results than the simple sclerotomy or iridectomy when I tried to make it alone.

As regards the cumulation of the two anti-glaucomatous operations with reference to the duration of their action, a firm statement in the one sense or the other cannot be made with absolute certainty until after a long series of years of observation, but theoretically we are *a priori* tempted to come to favorable conclusions concerning this double intervention.

## ON IRIDECTOMY IN GLAUCOMA.\*

By CH. ABADIE, M.D.

*Translated by Adolf Alt, M.D., St. Louis, Mo.*

THE iridectomy is wonderfully effective in acute glaucoma when made in time. Everybody knows this form of glaucoma in which there are violent pains, the eye is hard, the cornea dim, the pupil dilated. The operation is difficult, but generally a sovereign remedy and its action is definitive.

The subacute glaucoma has varieties which are more difficult to recognize, and the ophthalmologists agree less in their description. Some speak of subinflammatory glaucoma, an improper name to my mind; for if there is an inflammation, this inflammation is altogether a secondary one. It would be better to speak of glaucoma with *corneal complication*. This would have the advantage of indicating the capital symptom of these chronic forms and in no way prejudicating their character, since the corneal complication is absolutely and alone due to the increase of the intraocular tension.

It is true, this diffuse dimness of the cornea is of varying degrees; sometimes it is so dense that the iris is almost totally hidden; sometimes it is so insignificant that when the affection is unilateral it can only be recognized by comparing it with the normal eye. When, however, this dimness is present, we can state that in the majority of cases iridectomy will be successful.

Finally we can count on the good effects of this operation in the forms of glaucoma which progress by crises, with intermissions, and *a total remission during the intervals*. These intermitting crises appear in two different ways. They are either more or less dense obscurations of a varying duration, during which vision is impaired to return later to the norm; or these crises show themselves by colored rings which are perceived around flames and which disappear as they have come, without apparent reason.

When these phenomena are really intermittent, and we insist on it, *with complete remission during the intervals*, an iridectomy succeeds in curing them.

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\*Archives d'Ophtalmologie, November, 1900.



It is not the same with the other forms of glaucoma, which are called generally chronic simple glaucoma.

The development in these cases shows itself in purely functional disturbances which come on without the patient's knowledge. They are characterized by a progressive contraction of the visual field which, slowly growing, ends by involving the central vision, which it destroys, and thus finally the patient becomes blind.

In another form of chronic simple glaucoma the patient sees colored rings around flames, which attract his attention to the disease which threatens him. But this appearance is constant and is regularly reproduced under exactly the same and well-defined conditions (for instance, every evening as soon as the patient begins to look at a luminous object), and not with perfectly irregular intervals, as is the case in the glaucomata with intermittent crises, of which I have spoken above and which are curable by iridectomy.

In chronic simple glaucoma of whatever variety every operation on the eyeball is contraindicated and has no or a bad influence on vision.

Why should we, in the cases of acute, subacute or intermittent glaucoma, in which the iridectomy is successful, look for something else and perform sympathectomy, a much more laborious and complicated operation?

This is evidently wrong, and yet it is being done and we must fight against it. With astonishment, I found at the Congress of Ophthalmology at Paris and at the one at Heidelberg that a number of the cases cited in the statistics of removals of the superior cervical ganglion belonged to the class of those which can be cured perfectly by iridectomy.

A surgical intervention of this importance was, therefore, not in place, and the less so since just in these cases the sympathectomy did not seem to succeed. It is true, the pains are momentarily calmed; during several days the intraocular tension is reduced; but this operation has not as powerful a curative effect and as definitive as the iridectomy. This has led to the complaints of the surgeons who have applied it wrongly and to the discredit which has been cast on a very useful operation when it is performed in the proper cases.

In fact, glaucoma in its multiple variations is a complex,

bizarre disease, calling for various interventions, according to the form in which it presents itself. What is good in one form is bad in another and *vice versa*.

What I have above all else tried to establish in the numerous communications which I have published on this subject is, that contrary to the opinions held up to this date, glaucoma is not a disease of the eye in the strict sense, but a disease of the sympathetic nerve (whether of the original nuclei or of the conductive nerve-fibres, will become clear later on) which presides over the innervation of the vessels of the eye. Yet it may be possible and even probable that the vasomotor fibres, the constrictors and dilators of the vessels of the eye, take their origin from different places, which might explain the multiplicity of forms and the difference in the result when one or the other set of nerve-fibres is cut. In the acute and subacute forms the section of the iris-circle and of the nerve-fibres which it contains is efficacious. In chronic simple glaucoma we must act on the fibres of the plexus of the carotid.

At all events, in those cases in which an iridectomy promises success, there is all the evidence that we must retain this operation; not only because it is simple and belongs, properly speaking, to ophthalmic surgery, but also, and above everything else, because it is successful; while, on the contrary, in just these cases the sympathectomy, a longer and more difficult operation and one which belongs to general surgery, gives but uncertain results.

On the other hand, in chronic simple glaucoma the section of the nerves need not be made in the iris but in the cervical sympathetic, and in these cases results are obtained which could not be gained by any other method.

We have, it is well understood, given here only very general rules; but every experienced clinician knows that there are always exceptional cases.

Between the typical forms which we are obliged to well and completely separate in order to better differentiate between them, there are others which form transitions and in which it is difficult to know beforehand whether this or that treatment is likely to prove successful.

In consequence it is possible that in a given case in which an iridectomy seemed indicated, this leaves us in the lurch,



and that we have afterwards to perform sympathectomy; but it is none the less true that at this time the therapy of glaucoma might be formulated in the following manner:

In the acute and subacute forms with the corneal disturbance, in the forms with intermittent crises, obscurations of the visual field with colored rings around the flames but with complete remission in the intervals between the crises, we must first practice iridectomy, then when this fails recur to sympathectomy.

In chronic simple glaucoma we must begin first with the regular application of miotics, twice a day; if this appears to suffice, keep it up; and when, in spite of their systematic employment, vision deteriorates, execute the removal of the superior cervical ganglion.

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#### PAMPHLETS RECEIVED.

“Infective Otitis,” by F. M. Wilson, M.D.

“Pyogenic Brain Disease,” by A. R. Baker, M.D.

“Artificial Illumination,” by L. W. Alleman, M.D.

“The Simple Extraction of Cataract,” by E. Jackson, M.D.

“Foreign Bodies in the Orbit,” by Chr. R. Holmes, M.D.

“The Hygiene of Vision in the Home,” by S. D. Risley, M.D.

“Degenerative Results of Defective Heredity,” by Ch. Denison, M.D.

“Forty-First Annual Report of the Nederlandsch Gasthuis voor Ooglidiers, Utrecht.”

“Case of Successful Removal of Piece of Steel from the Vitreous Chamber,” by Ch. A. Oliver, M.D.

“Description of a New Method for the Implantation of Glass Balls into Tenon’s Capsule,” by Ch. A. Oliver, M.D.

“Five Hundred and Seventy-Nine Cases of Infection of the Temporal Bone, with Brief Comment,” by F. M. Wilson, M.D.

“History of a Case of Removal of a Retrobulbar Lymphosarcoma, with Preservation of Normal Vision,” by Ch. A. Oliver, M.D.

## CORRESPONDENCE.

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The following letter explains itself. We gladly avail ourselves of an opportunity to present it to our readers and wish Dr. Gould an unqualified success in his new enterprise, in which he deserves the staunch support of an honest and self-esteeming profession:

January 8th, 1901.

MY DEAR DOCTOR:

Without a day's notice, and without any complaint to me or criticism of my editorial management of the *Philadelphia Medical Journal*, I have been discharged by the board of trustees. I have not been allowed to explain this act to the subscribers of the *Journal* nor to say a word of goodbye to them. So long as I controlled the reading columns I did so to the uttermost of my ability with the purpose of keeping them wholly free from the influence of any publisher, from commercialism, and from a hundred forms of medical abuses, lay and professional. I have also aimed to give subscribers the most and best literature for the least money possible. In a word, I have sought to establish a great American medical weekly, with the closest attainable adherence to professional ideals and scientific usefulness. The organization of the company and its control by lay capital permitted a failure in my attempt at realizing the purpose.

Hundreds of letters and words of encouragement are being offered, advising the founding of a new medical journal, so organized that no one person can govern its fate. I am willing to give my best of remaining life to this end, but it necessarily depends upon the co-operation of the profession to carry it out. In order to test the desire of the profession I request an immediate reply to the following proposition: With trustworthy and competent business and professional associates, and under good legal advice, a company may be incorporated and capital stock offered to members of the profession, in the following manner:



1. *Founders' shares*, at \$50.00, giving the owner thereof a lifetime subscription to the new medical weekly, and perpetual participation in the profits. (The number of founders' shares is limited and the holders will secure a pre-eminent influence in the ownership and conduct of the journal. It is our purpose to make it an honor even to one's children to have been a founder.)

2. *Preferred shares*, drawing six per cent. dividends from the net earnings, subscriptions to which are requested in amounts of \$100.00 and over. (The preferred stock offers a safe, permanent and profitable investment.)

3. For \$10.00, three years' subscription to the journal and \$10.00 worth of common stock. (The common stock participates in dividends upon the net earnings after those paid upon preferred shares.)

4. For \$5.00, one year's subscription to the journal and \$5.00 worth of common stock.

These offers, any one or all, may be withdrawn at any time and without notice, when a sufficient working capital has been secured. We purpose maintaining the par value of the stock and shall issue only sufficient for a safe working capital, thus insuring full dividend-value on all investments.

In order to enlarge and perfect the new weekly so far and fast as possible, the subscription price will be placed at \$4.00

By the above plan there will be an absolute security that no combination of capital, and no lay owner or publisher, can ever obtain control of the journal. Thus at last may be satisfied the greatest need of the American medical profession, for a great organ free from the domination and dangers illustrated in the newspaper world, and unfortunately too frequently in medical journalism.

I do not wish money sent at present, but only a reply *at once* as to your willingness, and to what extent you will give the project your financial support. This letter is designed merely as a test of professional opinion. If sufficient funds are promised, details of plans, prospects and possibilities will be sent promptly. I wish to issue the first number of the journal in February.

The new century opens with a most prosperous commercial outlook. With your hearty practical interest we shall be able

to realize the early establishment of a representative organ of the profession and for the profession.

A postal card blank is enclosed, upon which your conditional offer may be indicated, and the same mailed to my address.

Faithfully yours,

GEO. M. GOULD.

1321 Walnut Street, Philadelphia.

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PAMPHLETS RECEIVED.

“Trachoma,” by J. C. Hancock, M.D.

“A Case of Sarcoma of the Choroid,” by A.R. Baker, M.D.

“Retinitis Albuminurica, with a Report of a Case,” by F. W. Alter, M.D.

“Thirty-First Annual Report of the New York Ophthalmic and Aural Institute.”

“Melanosarcoma of the Conjunctiva, with a Report of a Case,” by A. R. Baker, M.D.

“Gumma of the Iris and Ciliary Body; Recovery with Normal Vision,” by Ch. A. Oliver, M.D.

“The Use of the Electromagnet in Removing Foreign Bodies from the Eye,” by A. R. Baker, M.D.

“The Use of X-Ray and Electromagnet in Locating and Removing Foreign Bodies from the Vitreous Humor,” by A. R. Baker, M.D.

“Some Observations Upon Syphilitic Manifestations in the Optic Nerve and Retina; Inflammatory Manifestations,” by P. T. Vaughan, M.D.

“Estimation of the Amount of Injury to the Earning Capacity of the Individual from Partial or Complete Loss of Vision,” by H. F. Hansell, M.D.

“A Cataract Knife of Excellent Shape and Proportion, Devised a Century and a Half Ago by Dr. Thomas Young of Edinburgh,” etc., by A. A. Hubbell, M.D.

“Recovery of Vision by an Iridectomy with Removal of Lens-Capsule and Lens-Debris in a Case of Blindness of more than Thirteen Years’ Duration,” by Ch. A. Oliver, M.D.



# MEDICAL SOCIETIES.

## OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.\*

### CLINICAL EVENING.

G. ANDERSON CRITCHETT, M.A., M.R.C.S.E., President, in the Chair.

*Thursday, December 13, 1900.*

### CASES.

MR. J. H. FISHER showed a case of congenitally imperfect separation of the iris from the back of the cornea.

The patient was a woman, aged 27, who had been treated recently at the London Hospital for an attack which appeared to be one of acute or subacute glaucoma. On examination the whole anterior surface of the left iris was pitted. At the outer and lower part there was a wide adhesion of the iris to the back of the cornea, while on the inner side it was adherent to a less extent. Mr. Fisher worked out the refraction under homatropine, with the result that the tension ran to + 1. There was pain, and the pupil remained dilated, although that of the right eye had regained its normal condition the next day. Eserine contracted the pupil and reduced the tension.

He considered that the case threw some light on congenital glaucoma, as the position of the iris here clearly was the cause of the increased tension.

MR. W. T. LISTER showed a large dermoid tumor on the cornea of an ox. There was a large growth on the cornea and sclera, from which grew a bunch of long hairs.

MR. C. BROOKSBANK JAMES showed a rare example of persistent pupillary membrane.

The patient was a child, aged 8. She was brought on account of a convergent squint. She was one of a family of four, none of the others having any eye affection. When 16 months of age there was a slight inflammatory attack, which lasted a few days only. In the right eye there was a convergence of

\*British Medical Journal.

40°. The iris was of a pale greyish-yellow color. The normal pupil was occupied by strands which enclosed several openings. In the left pupil there were some small tags of pupillary membrane with good vision in the eye, and 5 D. of H. In the affected eye the vision was extremely bad, but the projection was good.

MR. JAMES also showed a boy, aged 11, who with his H. correction had normal vision. In the fundus there was a large pigmented area below the disc, which had a crescent. The pigment was mostly under the vessels, but near the disc they dipped into it. There was also a strand of persistent pupillary membrane. Mr. James referred to some cases shown by Mr. Sydney Stevenson which had somewhat similar changes.

MR. A. STANFORD MORTON showed a case of growth on cornea.

The patient was a boy, aged 7, who was first seen in August. At the upper corneal margin there was a yellowish spot 4 mm. in diameter; it was not raised above the corneal margin, and it extended downwards to about the margin of the undilated pupil. He tried to shave it off, but failed to do so. He then transfixed it and entered a space full of yellowish material, which he scraped out. It was found on examination to consist of connective tissue with some elastic fibres, but no fat. On the deep surface of the part removed was some cellular material in which there appeared to be a few giant cells, but there was nothing typical of tubercle. It certainly was not congenital, and it continued to spread, but very slowly.

MR. NETTLESHIP referred to a case he had seen with Mr. Bickerton which was somewhat similar, and here after a time it ceased to grow.

MR. GOLDSMITH also referred to a somewhat similar case.

MR. A. H. THOMPSON showed a case of superficial choroidal atrophy without subjective symptoms in a member of a family subject to night blindness.

The patient was a woman, who made no complaint of her vision, which was found on testing to be  $\frac{6}{9}$  in one eye and  $\frac{6}{6}$  in the other. The maculæ were normal and the fields full. In each eye there was a large area of choroidal atrophy; there was, however, no night blindness or diminished light sense.



This patient's father had difficulty in seeing objects, though he could see to read small print, and there were several members of the family who suffered from night blindness.

The PRESIDENT had found that many of these people found very great assistance from wearing glasses of golden yellow tint, and he thought that the cutting off of the violet rays by glasses of this color might be the explanation of this, although it did not help everyone.

Remarks were also made by Mr. EDRIDGE-GREEN and Mr. TEMPEST ANDERSON.

DR. W. C. ROCKLIFFE showed a case of conjunctival growth (pinguecula ?).

The patient, aged 12, was first seen in August. The mother stated that at birth a small red pimple was noticed at the outer side of the left cornea, and it has slowly spread since then. A crescentic pigmented thickening surrounded the outer third of the cornea, which was 2 mm. in thickness. It was freely movable with the cornea, and had no deep attachment, so that a probe could be passed beneath it. It had not enlarged to an appreciable extent during the last three months. There was a tuberculous history, but a piece he had removed for examination had not yet been reported on. The fundus was normal, and the vision  $\frac{6}{9}$ . Dr. Rockliffe stated that he did not think it malignant, and he mentioned a similar case shown to the Society by Dr. W. J. Collins.

In the *Ophthalmic Review* for October was an abstract of a paper by Le Grange, in which he stated his belief that they were usually of a dermoid nature, but they contained hairs; whereas in this case no hairs were present. Dr. Rockliffe expressed his intention of dissecting it out.

MR. R. MARCUS GUNN showed a case of (?) tubercle beneath the ocular conjunctiva.

The patient was a girl, aged 13, beneath whose conjunctiva of the left eye near the cornea was a vascular growth. She had tuberculous glands, but there was no family history of tubercle.

MR. J. H. FISHER showed a case of sarcoma of the conjunctiva.

The patient was a man, aged 28, who had been invalided out of the army on account of the eye. In May of last year

he first noticed a small red spot which grew and was removed in February of this year. It recurred and was removed again in May and also in August. There was now a flat yellowish-brown mass which was smooth on the surface, and vascular. About one-fifth of the cornea was covered, but the vision was good. There was no glandular enlargement and no specific history.

Mr. Fisher proposed to remove the eye with the growth, as partial operations had been proved to be useless.

MR. C. BLAIR showed an unusual case of choroiditis.

The patient was a woman whose sight had been affected for about three months, and was J. 20. There was an area of closely-packed choroiditis with almost an entire absence of pigment. The patches were not raised, and the field of vision was defective. The vitreous was full of opacities, but there was no specific or tuberculous history.

MR. JESSOP always looked upon these cases of vitreous opacities as syphilitic, and thought that his case was really of that nature.

MR. C. O. HAWTHORNE also mentioned a case.

MR. W. T. HOLMES SPICER showed a case of nævus of the orbit.

The patient was a married woman, who when seen in July, 1898, had some proptosis of the left eye due to a vascular tumor. In August of that year he did electrolysis without any immediate result. In January, 1899, he again electrolyzed it. She became pregnant, and during this time it increased greatly in size. A hard mass was then felt, and on cutting into this it was found to be an old blood cyst. Shortly after the cornea ulcerated, and the eye was excised. Mr. Spicer then sent the patient to Dr. Lewis Jones, who considered that owing to the apparent free communication of the growth with the cavernous sinus, electrolysis was not safe.

MR. FROST suggested that pressure might be beneficial.

The PRESIDENT thought that the growth had better be left alone owing to the danger of cutting into so vascular a tumor.



## ABSTRACTS FROM MEDICAL LITERATURE.

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BY W. A. SHOEMAKER, M.D.,  
ST. LOUIS, MO.

### IMMATURE CATARACT AND ITS TREATMENT.

G. E. de Schweinitz, in paper read before the Section of Ophthalmology at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5-8, 1900, concludes as follows:

1. Certain lenticular opacities, most often situated in the naso-inferior quadrant of the lens, occasionally are practically stationary and may be designated "non-progressive." They do not handicap the patient's ocular abilities, and may with propriety be separated from the class to which the name incipient cataract is ordinarily given.

2. Certain lenticular opacities undoubtedly depend, as Risley and others have shown, on what may be designated "disturbances of the choroid," as apart from active and actual choroiditis; and their progress is sometimes apparently checked by measures—optical, local and general medicinal—which restore the choroid coat to normality. Such measures do not, however, remove from the lens the opacities which have already formed when the patient comes under treatment.

3. Certain lenticular opacities which appear in association with diabetes mellitus, nephritis, lithæmia and arteriosclerosis, particularly the last two diseases, are sometimes apparently retarded, like those in No. 2, by measures which are suited to the patient's general condition in connection with local and optical therapeutics; but these measures never dissipate the lens-lesions already present.

4. Certain lenticular opacities produce not only prodromal miopia, but a very high degree of astigmatism, the correction of which may result temporarily in a surprising improvement in visual acuity.

5. Certain lenticular opacities cause an obscuration of vision that may be largely dissipated temporarily by providing the patient with glasses moderately tinted, which give

the best visual acuity during mydriasis, and maintaining this mydriasis with a mild mydriatic. Sometimes, under these circumstances, the mydriasis seems to hasten maturation; this fact should be explained to the patient.

6. Certain lenticular opacities, especially in the form of striæ of refraction, cause an obscuration of vision which is somewhat relieved by maintaining a mild miosis with weak solutions of one of the miotics.

7. If the vision of eyes suffering from incipient cataract of the nuclear type is improved by mydriasis, this is not a sufficient indication for optical iridectomy, unless the patient finds by observation that the increased visual acuity, as noted by test-type examination, is also advantageous in pursuing his ordinary occupation.

8. The extraction of unripe cataracts is preferable to any of the ordinary operations for ripening cataracts.

9. There is no evidence that electricity has the slightest influence in checking the rate of progress of incipient cataracts, or dissipating the opacities which have formed.

10. If there is any evidence that massage of the eye-ball favorably modifies the rate of development of cataract, it is still very insufficient; there is some evidence to show that massage sometimes hastens the opacification of the lens. The subject demands further investigation.

11. There are no "specific remedies" for the treatment of cataract, and there is no reliable evidence that drugs exist which cause the absorption of partially or fully formed cataracts.

12. All lenticular opacities, unless perhaps those which belong to the so-called non-progressive group, should be regarded as indications for a thorough investigation of the patient from the general as well as the ocular standpoint, and for an employment of remedial agents—optical, local, medicinal—according to the findings.

DISCUSSION.—John E. Weeks thinks medicinal therapeutics and other measures to improve health have a wide range, and are of value in preventing the progress of cataract, but does not believe they can cause existing opacities to disappear. In non-progressive cataract he advises optical iridectomy only in those cases where vision can be brought up to  $\frac{20}{40}$  or



better by use of a mydriatic and a correction of the error of refraction if any exists. This amount of vision he considers necessary to permit an individual to pursue the ordinary vocations of life. Whenever this amount of vision cannot be obtained the removal of the lens is advised, providing the fundus is normal, and providing there is any reason for not waiting until the cataract matures.

S. D. Risley referred to the series of eighty cases of immature and incipient cataract seen in his private practice and reported in 1889. The analysis of these cases seemed to show that the lens changes were due to some disease of the uveal tract. He believes that the progress of an opacity in the lens can frequently be arrested, but does not think it can ever be made to disappear.

W. H. Bates reported two cases of incipient cataract occurring in patients 70 and 60 years old respectively. Vision in the former was  $\frac{15}{200}$  and in the latter  $\frac{15}{50}$  with correcting glasses. He referred them to a general practitioner for constitutional treatment, and in three months their vision was improved to  $\frac{15}{10}$ , and a number of the opacities had disappeared.

G. O. Ring reported a case of incipient cataract where the opacities disappeared entirely under antisiphilitic treatment. The patient had a double optic neuritis, in addition to the lens changes, with vision almost nil. Vision was restored to  $\frac{20}{20}$  in one eye and  $\frac{20}{30}$  in the other.

#### OCULAR HEADACHE.

Jas. Hinshelwood (*Glasgow Medical Journal*, November, 1900) insists that in every case of obstinate headache which does not yield to medicinal treatment the eyes should be examined thoroughly, even in the complete absence of subjective ocular symptoms.

Stevens, out of one hundred consecutive cases of chronic headache, cured sixty-one by correcting ocular defects.

Gould finds seventy-five per cent. of all headaches and ninety-five per cent. of all sick headaches due to eye strain.

(The nose and the adjacent sinuses should be thoroughly examined as well as the eyes in every case of obstinate headache.)

## EYE AFFECTIONS IN BRIGHT'S DISEASE.

T. R. Pooley (*Med. Review of Reviews*, Sept. 25, 1900) divides these affections into two general classes: (1) Uræmic amblyopia; (2) albuminuric retinitis. He describes in detail the different forms of ocular changes according to the classification of Schoebl of Prague.

1. Typical albuminuric retinitis.
2. Degenerate albuminuric retinitis.
3. Hæmorrhagic albuminuric retinitis.
4. Albuminuric chorio-retinitis.
5. Albuminuric neuro-retinitis.
6. Albuminuric papillitis.
7. Saturnine retinitis.

He believes organic eye lesions occur in 10 per cent. of all cases; the prognosis is most unfavorable. Excluding the cases occurring in acute nephritis during pregnancy, and the acute exanthemata in which a cure is often observed, death is almost certain to occur in a few months or a few years. He looks upon two remedies as of value—bichlorid of mercury and tannate of iron—which latter remedy he believes diminishes the liability of recurrent hæmorrhages.

## TWO CASES OF BLINDNESS DUE TO SPHENOIDAL AND ETHMOIDAL DISEASE.

G. Victor Miller (*British Medical Journal*, Dec. 22, 1900) reports two cases of blindness due to sphenoidal and ethmoidal sinus disease followed by death as the result of brain complications. The author also refers to a case reported by Sandford of double optic atrophy; to one recorded by Rouge where there was exophthalmus, strabismus, deafness and blindness, followed by death; and to a case of retro-bulbar neuritis reported by Holmes—all due to disease of the sphenoidal sinus. In addition to the above, a considerable number of cases of sphenoidal sinus disease have been placed on record by Schäfer (who first recorded the condition), Grunwald, Nöbel, Macdonald, Bronner, Heryng, etc.

## SYMPATHETIC OPHTHALMIA IN SPITE OF ENUCLEATION.

Abadie (*Revue Générale d'Ophtalmologie*, September, 1900) reports a case in which sympathetic ophthalmia recurred fourteen years after the enucleation of the eye pri-



marily affected. It resisted all treatment until conquered by injections of three drops of a one-per-cent. solution of mercury cyanide into the stump of the enucleated eye. The optic nerve had probably been invaded by the primary infectious process, but the infection had remained latent for years.

#### THE LASHES IN CATARACT OPERATIONS.

Schioetz (*Revue Générale d' Ophthalmologie*, Paris, September, 1900) recommends the removal of the lashes before operating for cataract; he does not advise shaving them, as it produces an injurious irritation and the stiff new growth disturbs the patient. Epilation the author considers the only rational procedure in these cases. It produces no reaction on sound lids, and the sprouting lashes are soft and fine. Several days should elapse between the epilation and the extraction.

#### CONJUNCTIVITIS PETRIFICANS.

T. Leber (*Archiv. f. Ophthalmologie*, October 23, 1900) in 1895 first described the acute process of calcification, to which he applied the term in the title. Since then he has had occasion to observe and follow three cases of typical and three others which differ in some respects from the exact type described. The process differs from ordinary calcification, as the lime is still in an organic crystallizable combination. Two or three similar cases are on record from preceding centuries, one stated to be the result of witchcraft. The lesion first appears as white opaque spots, with no inflammation nor subjective disturbances, or very slight if they occur. It resembles the action of a caustic, especially of lead-water. The affection progresses spasmodically, new foci appearing and others healing or lingering for weeks, months or even years. The possibility of complete retrogression of the conjunctival process is in striking contrast to its severity. The smaller foci vanish completely by absorption or elimination of the affected tissue; but the more extensive leave the membrane slightly thickened and shriveled at the spot, but not at all in proportion to the extent of the lesion. A tendency to recurrence may remain, but gradually becomes attenuated, although in some cases the attacks recur in endless succession, terminating in blindness. Weak antiseptics may prove useful

at first, but later no irritating substance is tolerated. Warm, moist compresses favor the expulsion of the necrotic tissue. Excision of the focus, when possible, abbreviated the attack and rendered recurrence milder. No micro-organisms could be discovered, but the propagation of the lesions by contact favored the idea of a microbial origin.

THE TREATMENT OF TRACHOMA BY EXPRESSION, WITH  
SPECIAL REFERENCE TO THE RECURRENCE  
OF THE DISEASE.

Thos. R. Pooley (*Philadelphia Medical Journal*, Dec. 15, 1900), in view of his later experience, summarizes his conclusions as to the value of the improved method of the treatment of trachoma, as follows:

1. Of all the mechanical methods expression in suitable cases is the most efficient remedy yet discovered; effecting, in a large percentage, a more or less complete cure with better preservation of the conjunctiva than any method hitherto described.

2. It must, however, in every instance, be carefully followed by local treatment until all tendency to relapse has disappeared.

3. The success of the method depends on the conscientious removal, so far as possible, of all the trachomatous bodies without injury to the conjunctiva.

4. In any event, so far as the writer's experience goes, more or less frequent relapses will occur.

CONGENITAL CORECTOPIA.

E. Von Hippel (*Arch. f. Ophthalmologie*, Oct. 23, 1900) reports the examination of an eye enucleated on account of traumatism, which showed a condition of congenital corectopia and luxation of the lens, confirmed by investigation of the other eye. The iris had been pulled backward by a connecting strip of solidified vitreous substance containing an artery and two or three veins. The luxation of the lens had been secondary.



## BOOK REVIEWS.

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OPHTHALMIC LENSES. DIOPTRIC FORMULÆ FOR COMBINED CYLINDRICAL LENSES. THE PRISM DIOPTRY AND OTHER OPTICAL PAPERS. With one hundred and ten original diagrams. By CHARLES F. PRENTICE, M.D. [Philadelphia, Pa.: *The Keystone*. 1900. Price, \$1.50.]

The author has collected in this book all of his formerly published original papers on lenses, etc., in a revised and improved form. This compilation is a very valuable addition to any medical library, as it avoids complicated mathematical formulæ and deductions as much as possible and gives excellent and clear drawings to ensure a perfect understanding of the subjects treated upon.

The publishers, also, have done their work well. ALT.

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### PAMPHLETS RECEIVED.

“Spasm of Accommodation in Glaucoma Relieved by Eserine,” by J. A. Lippincott, M.D.

“Advantage of Strong, Portable, or Easily Movable Magnets in Eye Surgery,” by J. A. Lippincott, M.D.

“Systematic Cleansing of the Nasal Cavities Before Operations which Involve Opening of Eyeball,” by J. A. Lippincott, M.D.

“Case in which Both Eyes were Lost from Choroidal Hæmorrhage Subsequent to the Extraction of Senile Cataract,” by A. R. Baker, M.D.

“Case of Glioma Retinæ and Brain Metastasis, with Autopsy and Review of Literature,” by F. M. Wilson, M.D., and E. S. Thomson, M.D.

“A Case of Traumatic Varix of the Orbit, in which Ligation of the Left Common Carotid Artery was Successfully Performed,” by Ch. A. Oliver, M.D.

“A Case of Acute Glaucoma with Subhyaloid Hæmorrhage, Supervening upon Unilateral Retinitis Albuminurica,” by D. Webster, M.D., and E. S. Thomson, M.D.

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ORIGINAL ARTICLES.

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THE POSITION OF OPHTHALMOLOGY IN THE  
CURRICULUM OF THE MODERN MEDICAL  
SCHOOL, WITH SOME SUGGESTIONS  
AS TO THE METHOD OF  
TEACHING IT.

BY SWAN M. BURNETT, M.D., PH.D.,

Professor of Ophthalmology in the Medical School of Georgetown University; Director  
of the Eye and Ear Clinic, Central Dispensary and Emergency Hospital, Etc.

WASHINGTON, D. C.

WITH the rapid advance in the methods of medical teaching the United States made within the last two decades, it is not to be wondered at that as a part of the chaotic condition incident to such expansion there should be considerable difficulty in arranging the curriculum with a just valuation of each and every branch taught.

The lengthening of the course to four terms of from six to seven months or more each has given opportunity for an increase in the amount of work to more than double that required twenty-five years ago or, in some colleges, even ten years ago. Within that time the methods of medical instruction have been almost completely revolutionized and the proper adjustment of the teaching of the different branches—some of them entirely new in that period—has been a source of much perplexity and dif-



faculty to the committees on curriculum on whom this duty usually falls.

In this paper I propose to consider the claims and requirements of ophthalmology in this division of time and extent of instruction. Ophthalmology is not one of the newer branches, such as bacteriology for instance, and has been taught in some fashion as a distinct subject in some of our medical schools for thirty years or more. This, however, was done usually by a lecturer or clinical professor outside the regular faculty and often limited to the "spring course." No doubt in some instances the very best use was made of the opportunity and the hearer was benefited to the extent of his capacity and the attention he gave to it. In others, however, just enough was given to mystify and confuse the student. As no examination was held and attendance on the lectures was not compulsory, the usual result of such conditions prevailed, and a very vague smattering was all the student carried away with him from the college halls. All this is now changed. Ophthalmology is a part of the required curriculum in every medical college of repute, an examination is held on the subjects taught, and in many the professor is a voting member of the regular faculty.

These responsibilities having been granted and assumed, what and how much of ophthalmology shall be taught to the students who have been placed under our guidance?

Ophthalmology is an immense field, and there would be no difficulty in finding plenty of work for four times the amount of space that can be allowed for its teaching even in our extended terms. There are limits of time and limits of practicability. What we need and desire is that which is essential to the general student as a foundation for future work without burdening him with the superfluous or that which he will not be called upon to use. Horace Greeley once said a newspaper was made more by what it left out than by what it put in, and so with us the process of elimination is the one which presses most imminently for our consideration.

In the discussion of the question we shall have to reckon with another feature which is likely to force itself upon the attention of our curriculum committees in arranging the schedules of instruction, and that is the elective system. Prof. Bowditch of Harvard dwelt at length upon this problem in his

presidential address at the last meeting, in Washington, of the Congress of American Physicians and Surgeons, and it is certain that we shall have to face its solution at no distant day. The field of medical practice has become so broad that young men feel that they must prepare themselves for certain lines of work when they begin their medical studies, and often indeed during their collegiate courses. It would be unjust to require as much ophthalmology of a man who proposes to practice gynecology as one who intends to do eye work, and *vice versa*. In every properly-ordered curriculum, therefore, the claims of each of these classes—the general and elective—should be fully admitted and dealt with.

The number of hours that shall be given to the study of ophthalmology and the manner in which the lectures shall be arranged must, in some degree, be regulated by the peculiar condition of each college and will be determined by the different requirements of the ordinary and elective student. It is safe to say, however, that from forty-five to fifty hours is the very least that should be demanded for the ordinary student, this including the didactic lectures, demonstrations and clinics.

Ophthalmology is, I believe, usually taught to the fourth class only, and with the present tendency to condense the teaching of the separate branches as much as possible, it seems on the whole a much better system than to divide it between the third and fourth years. The teaching may be distributed throughout the entire fourth year, giving one didactic and one clinical lecture each week for a six-months' or a twenty-four-weeks' course.\* Or it may be still further condensed into a single semester, giving two didactic and two clinical lectures each week. If the first semester from October 1st to the holidays is selected, an examination should be held immediately upon the termination of the course, while the subject is still fresh in the student's mind, in order that he may go on to other work unfettered with this. The examination whenever held should be written and require an answer to from six to twelve questions and be conducted under the supervision of the professor. The didactic lectures may be delivered before

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\*Six full months is, I believe, the minimum length of a course recognized by the Association of American Medical Colleges.



the whole class in the lecture hall; but for demonstrations in the laboratory and for clinical work the class must be divided into sections. Clinical ophthalmology particularly can be taught in no other way. It is impossible that a class of one hundred or fifty or only twenty-five can obtain a satisfactory view of an operation or observe the salient points of a case of disease of the external portion of the eye from the benches of an amphitheatre, or even when standing around an operating table or the chair of the instructor in the clinic. The days are past when the professor can stand in an amphitheatre and harangue five hundred students, some of them a hundred feet distant from him, and consider that he is teaching them clinical ophthalmology. Ophthalmology can be taught properly only at close range, and for this small classes or sections are essential. At the last meeting (1900) of the Association of American Medical Colleges, held at Atlantic City, several instructive papers were read and thoroughly discussed on the best methods of teaching clinical medicine. The opinion was universal that it should be done in small sections of the class, numbering not more than ten and with a decided preference for only five in each section.

This division into sections requires a number of demonstrators or instructors when the class is large. Experience has shown that there should be at least one demonstrator for every ten students, if the time of the student is not to be wasted in aimless standing around. When the student has become somewhat advanced in his studies, cases may be turned over to him for examination and diagnosis, an account of which he will give in detail to the instructor. In a large clinic, with abundant material, a number of demonstrators may be at work at the same time, under the general supervision of the professor, or the different sections may come on separate days.

The teaching of ophthalmology should be, as we have said, didactic, demonstrative and clinical. The tendency of late years to make the teaching of the more practical branches—internal medicine and surgery in all its branches—almost, if not altogether, clinical, is based on an erroneous conception of the natural processes of education. The didactic lecture must ever hold an important position in any system of instruction

which aims at thoroughness and follows the scientific principle of going from the general to the particular or individual.

Students must be taught what they are to look for before they can intelligently search after it, and the relation of all known facts to each other must be understood and formulated before the significance of any one can be fully realized. In other words, a ground work of general principles must be established before a structure of accurate knowledge can be erected.

The work should, therefore, be properly distributed between the lecture hall, the laboratory and the clinic. Didactic lectures and demonstrations in the laboratory should form about one-half the course of instruction.

The anatomy of the eye and its adnexa—a thorough knowledge of which must be held as a fundamental requisite—is in most, if not all, medical colleges taught by the professor of anatomy as a part of the general structure of the human body. This may be done well, or it may be done badly, but in either case it can hardly fulfill the demands of the student of ophthalmology who requires a knowledge of the anatomy of these parts with special reference to their pathology. Moreover, as anatomy is usually taught in the first year, or at farthest in the second year, and ophthalmology in the fourth, what knowledge the student may have acquired from the professor of anatomy of the anatomy of the eye will have been more or less obscured by the mass of other heterogeneous learning he may have acquired in the meantime. It would be well then to relieve the chair of anatomy of the teaching of the anatomy of the eye except in the most general way, and as it is necessary in a consideration of the general structure of the body, and not as a special organ,

This discussion of the anatomy of the eye should begin with a demonstration of the structure of the orbit and especially its relations to the accessory sinuses and the openings leading into the adjacent cavities, with an indication as to their significance in pathological conditions of each.

The orbital contents, and especially the origin and insertion of the external muscles of the eye and their relations to the capsule of Tenon, should follow this. Those students following an eclectic course should be required to make care-



ful dissections of these parts on the cadaver; but for demonstration to the ordinary student, a wet preparation, showing the globe with the muscles attached, and the origin of those starting from around the optic foramen, is very convenient. One such I have used with satisfaction for many years.

The macroscopic anatomy of the globe itself should be taught by dissected specimens. An antero-posterior section of a hardened eyeball will show the relations of the parts very satisfactorily. Those following an elective course should be required to make dissections of animals' eyes for themselves. If the professor is a good draughtsman, he will make diagrams on the blackboard, more or less extensively, as an assistance in demonstration, or employ drawings already prepared for the purpose, but these should never be allowed to take the place of the actual specimen.

The demonstration of the microscopic anatomy comes next, and should be done by means of actual sections under the microscope. Good photomicrographs of the sections placed by the side of the microscope will serve as excellent guides to the demonstration, supplementing the general features of the specimens drawn on the blackboard, or in the more finished card drawings.

Having finished with the eye as an anatomical organ, the next division of the subject will be its study as an optical instrument. In order to a full understanding of this, a knowledge of the laws of light and the principles of optics is essential. Some of our students have already had courses in physics as a part of their preliminary education, and the number of these is increasing yearly. But many have not had such training, and even those who have, need to have their knowledge of the subject refreshed and arranged for this special application. It is necessary, then, to make up this defect by going over the laws governing the action of light, and in particular those applying to the phenomena of refraction and the formation of images by dioptric apparatus. In making this exposition it is not necessary to go into complicated mathematical formulæ, except, it may be, for the elective student. The method of trigonometrical construction as followed in the little book of Mr. C. F. Prentice, on "*Ophthalmic Lenses*," and by some others is amply sufficient for the general student.

Without a thorough grounding in these laws, a further study of the application of them to the optical condition of the eye is fraught with almost insuperable burdens and mystifications.

Moreover, if the student does not make himself familiar with them now, he never will later, when he has assumed the responsibilities of practice, and this knowledge will smooth the way for any future work he may wish to do in that direction. The object in all education should be, not so much the communicating of isolated or even groups of facts, as the teaching of the best means of learning how to obtain knowledge and arrange it systematically in a scientific method.

Along with this of course goes a general description of the different kinds of lenses, the methods of determining their power, and the modes of designating them in the various inch and the metric systems.

From this the transition is easy to an application of these laws to the human eye as an optical instrument, embracing a thorough demonstration of the schematic or reduced eye, emmetropia, accommodation and its anomalies, and the forms of ametropia and the means of correcting the latter, with the principles underlying them.

This is done by didactic lectures and by demonstrations on the artificial eye and other optical appliances showing the actions of these laws.

Finally comes the study of the eye as an organ of sense. This includes, first, the methods of testing the visual acuteness, with the principles on which they are based, with the various kinds of test-objects and the manner of recording the amount of vision. Theories of color perception can be then gone over briefly, followed by the law of projection, the visual field, binocular vision, diplopia and its significance as to the special muscles involved, and strabismus. In most colleges a greater or less amount of physiological optics is taught by the professor of physiology. What has been said in reference to the teaching of anatomy of the eye by the professor of anatomy is applicable here, and the professor of physiology can be very properly relieved of much of the teaching that has hitherto fallen to his lot.

It will be seen that the foregoing comprehends only such



fundamental facts in regard to the anatomy and physiology of the eye as every student should be possessed of in order that his general medical education shall be passably complete. Moreover they are essential to any proper teaching of clinical ophthalmology.

In the teaching of clinical ophthalmology each professor will be guided largely by the material at his command and the facilities afforded him. As has already been said, this can be done satisfactorily only in small classes or sections of not more than ten, while five are preferable.

The external or commoner diseases demand first attention, because those are the diseases which the young practitioner is most likely to meet with and in the diagnosis of which he is most liable to make regrettable mistakes. Particularly should the signs and symptoms of conjunctivitis, iritis, and glaucoma be so clearly pointed out and insisted upon as to make an error in diagnosis impossible. Many an eye would have been saved from destruction if the general practitioner had only had the little knowledge which would not have allowed him to treat for weeks an iritis for a conjunctivitis; and few ophthalmic surgeons have escaped the experience of having sent to them, by a friend, a case of leucoma of the cornea to be operated on for cataract. Such mistakes as these should not be possible in any practitioner turned out of a modern medical college. Special attention should be given to those diseases of the eye due to or attendant upon systemic disease or disease of other organs, such as syphilis, gonorrhœa, rheumatism, etc. When possible, bacteriological preparations of all conjunctival discharges should be exhibited.

The same principle holds good in regard to operations as to diseases. It is of much more importance that the general student should be familiar with the technique of enucleation—an operation he may be called upon at any time to do—than with the manner of extracting a cataract, which he never will or never should do unless he proposes to practice ophthalmic surgery.

As much practical experience should be given in examining the refraction of the eye by means of test-glasses, the shadow test and the ophthalmometer as possible, but not at the expense of a thorough study of the commoner external

inflammatory diseases. A good working knowledge of the ophthalmoscope is very desirable for any general practitioner, but in these days when a specialist is within easy call it is by no means essential. Ophthalmoscopy is not an art easy to learn, and to become proficient in it to the extent of relying upon one's own observation requires much time and no limited experience. It is impossible for the average student with the abundance of work he is compelled to do in the other departments to give the amount of time necessary to get a command over the instrument that shall enable him to bring it with any profit into his practice. An attempt to teach it to the general student is, except in rare cases, a waste of time. It is different, of course, with the elective student, and to him the principles of ophthalmoscopy should be fully taught with as much exercise in its use as possible.

A compulsory examination for permission to practice medicine is now in force in most of the States of the Union and must become at no distant day a law in all. There will follow naturally from this a reciprocity among the licensing boards of the different States based upon a certain standard of requirement. The Association of Examining Boards formed within the last two years will inevitably bring about this result. This will, in its turn, have the effect of bringing the curriculum of our various medical schools into something like uniformity in order to meet the demands made by these examinations.

The object in writing this paper has been to indicate, as the opinion of one teacher and a member of a committee on curriculum, what in his experience and observation of nearly twenty years has been found necessary and possible in adjusting the teaching of ophthalmology to that of the other branches in the time allotted in a full four years' course. By other teachers other schemes may have been found more satisfactory, and it is hoped that an expression of the views of the teachers throughout the country may lead finally to such an approach to uniformity and thoroughness in the teaching of this branch as shall give all that is necessary and none that is superfluous.



## CASES FROM THE CLINIC.

BY HENRY DICKSON BRUNS, M.D.,

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and Throat Hospital.

NEW ORLEANS, LA.

*Spontaneous Dislocation of a Cataract of More Than Twenty Years' Standing into the Anterior Chamber; Apparently the Extra-Capsular Nucleus.*—On November 24, 1900, Mr. X., a farmer, spare, wiry and weather-beaten, presented himself at my office and gave the following history: His age is 70; his right eye has been blind with cataract for the last twenty-three years, and the pupil looked white instead of black. To his great surprise, a little more than a year ago, he began to see a little with this eye, and he noticed that a part of his pupil, up and inwards, in the shape of a crescent, had become black. Last September his eye began to grow red and painful, and these symptoms became extreme and lasted a long time. Of late this has been much better; the pain and dull ache have almost disappeared.

The right eye presents a moderate ciliary injection, the cornea is clear, and the pupil moderately dilated; the tension is perhaps a trifle elevated. In the anterior chamber, down and outward, with its edge resting on the junction of the cornea and iris, is a roundish, dark-yellow body, about three-sixteenths of an inch in diameter and about one-eighth of an inch thick. The surface is slightly rough and lusterless, and the edge thin and delicately crenated. The upper and inner portion of the pupil is perfectly black and clear, and through it the ophthalmoscope shows the vitreous body to be loaded with opacities. R. E. V. = fingers at one foot only. L. E. V. =  $\frac{20}{70}$  but with + 1.5s =  $\frac{20}{20}$  fairly well, and with + 4.5s. = Sn No. 1 well at the proper distance.

Now, this can be the shrunken nucleus of a hypermature cataract, which has escaped by the breaking open of the capsule at the same time (probably) as the zonule gave way, or it may be the atrophic remains of both lens and capsule, detached from the center of a very old cataract. To close inspection through a lens, it gave the impression of being devoid of capsule, and presented the exact appearance of

certain small dark-yellow nuclei that we deliver in making extraction. In either case all shreds and remains of capsule and zonule must have been well retracted behind the rather narrow iris, for no sign of them was to be seen in the pupil. As the patient was confident that the mass was decreasing, and as the heaviness and pain were much less and still diminishing, and as an operation on an eye in such condition and with such a history would probably end disastrously and could only be undertaken to relieve pain, I advised giving nature a chance; together with hot bathing and the friction of the forehead at night with a drachm of the mercurial and belladonna ointment. (Ungt. hydrg. ʒj., Ext. belladon. ʒj.)

I report this case because the peculiar conditions and appearances are new to me, although I have seen many clear and cataractous lenses in the anterior chamber, and because I can find nothing similar to it in the cyclopedic work of Louis Stricker on the Crystalline Lens System (1899).

*Buphthalmus Much Improved by Iridectomy.*—V. C., a white ("dago") infant of two months, was brought to the clinic on May 8, 1899, and was assigned to the care of my chief of clinic, Dr. E. A. Robin. The parents stated that the R. E. had been sore for one week.

The general appearance of the child is good. The R. E. is injected, and a diagnosis is made of keratitis interstitialis, R. E.; buphthalmus, O. U.

Mercury bichloride, gr.  $\frac{1}{96}$ , once daily is prescribed, and eserine at clinic three times a week. Iridectomy is advised in L. E.

May 25, 1899. The  $\frac{1}{96}$  bichloride is to be given twice daily. The cornea of L. E. is brighter.

June 7, 1899. L. E. a large iridectomy outwards.

July 10, 1899. L. E. much improved. The cornea is decidedly clearer than that of R. E.

July 17, 1899. Conjunctivitis, especially in R. E. Half-a-grain of zinc sulphate in an ounce of water is instilled.

August 30, 1899. Large iridectomy in R. E., without accident.

September 3, 1899. Doing well.

November 18, 1899. Can undoubtedly see with L. E. In R. E. there is sub-acute conjunctivitis, for which a mild ni-



trate of silver solution is applied once a week, and drops containing boracic acid, borax and camphor are ordered for home use.

November 25, 1899. The conjunctivitis is much better.

January 15, 1900. In both eyes the buphthalmus is absolutely stationary. In R. E. the cornea shows the central opacities of the old interstitial keratitis, but that of L. E. is clear and bright, making the eye a very useful one for the future.

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RIGHT HEMIANOPSIA — ALEXIA — WITH PARTIAL  
TEMPORARY VISUAL APHASIA AND AMNESIA,  
AND AMNESIC COLOR-BLINDNESS FOLLOWING AN ATTACK OF  
INFLUENZA.\*

By S. D. RISLEY, M.D.,

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PHILADELPHIA, PA.

**M**R. D. L. W., aged 55, a merchant, consulted me on November 15, 1898, with a note from his physician, Dr. J. C. Brown, of Vincentown, N. J., regarding a disturbance of vision, the exact nature of which he had a great difficulty in describing. He was a large muscular man who had enjoyed excellent health up to the 10th of September, 1898, at which time, while suffering from what he regarded as an ordinary cold, he had a slight attack of vertigo at his tea-table, and soon after went to bed. He was awakened in the night by a right hemicrania, unattended by nausea or vomiting. The pain persisting, his physician, Dr. Brown, was called the following morning, and found him with elevated temperature and a rapid, full pulse. He was sent to bed, where he very soon became unconscious and remained so for three days. This time remains a perfect blank to him, but his wife related that he vomited almost constantly. He then recovered partial consciousness, with frequent lapses into his preceding condition. During the conscious intervals his hemicrania persisted,

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\*Read before the Ophthalmic Section of the College of Physicians of Philadelphia.

the pain commencing in the right supra-orbital region and extending backward to the occiput and nape of the neck. The lapses into unconsciousness grew less frequent and persistent, and gradually faded out; but he was confined to his bed for three weeks. There was no general paralysis of motion, and no convulsions at any time, but he thinks that on first recovering his senses he saw double. His statements on this point were confused and uncertain; indeed in his attempt to describe his visual trouble he grew discouraged, and in a helpless way turned to his wife for assistance. Under careful inquiry it became evident, however, that he had had some confusion of vision on recovering his consciousness, for even after leaving his bed, on looking out of the window well-known objects, even the houses on the opposite side of the village street, appeared unfamiliar, and he failed to recognize his passing friends, although he saw them with sufficient clearness to recognize them. When spoken to through the window by acquaintances he would inquire of his wife who they were, evidently suffering from a visual amnesia or mind-blindness, his memory for familiar objects and faces having been completely lost. At the time of his first visit to my office this had disappeared, except for frequent lapses into what he called "bad memory." Careful study, however, revealed the fact that this difficulty existed only for objects or persons when looked at; that he was mind-blind to impressions received through the sense of vision only. His acuity of vision for letters was  $\frac{6}{20}$  in each eye, which rose to  $\frac{6}{12.5}$  with correcting glasses. The charts for the field of vision revealed absolute right hemianopsia, with a well-marked contraction of the remaining half of the field, both for form and color. In the attempt to take the color fields it was at once discovered that he could not always name the colors correctly, although he could recognize them when named; that is to say, when asked if blue were red, he promptly responded no; but asked if blue, he responded yes, and so on with the other colors. He found no difficulty in matching correctly the Holmgren skeins. The amnesic color-blindness, in a word, was almost complete. He could call the letters on the test card correctly, with some hesitation, but was entirely unable to read his newspaper or make out a bill of fare at a restaurant, but curiously enough



could add up a column of figures. He could read a short sentence by spelling each word slowly, naming the letters aloud, and could then go back and read the sentence, to use his own expression, "could get the sense of it." But without this method the printed page conveyed no meaning to him.

He conversed freely, could write not only his own name without difficulty, but could write a business letter, he said, as well as ever, but found great difficulty in reading it after it was written. His wife, a very intelligent woman, related that he had markedly improved in many respects; that not only could he usually recognize his friends, but that he was slowly regaining his normal characteristics; that during the early days of his convalescence he would sit mute for hours and did not wish to be disturbed, and was much averse to conversation, which was apparently due to his difficulty in framing a reply. Her own expression for the condition was that his "brain did not seem to work right," although he understood anything that was said to him. The ophthalmoscopic appearances were those of a retrograde neuritis. That this was a correct interpretation of the ophthalmoscopic picture presented for each eye seems demonstrated by the beneficial results of the treatment. There was no disturbance of ocular motility; the hemicrania and occipital pain continued, and he slept badly. He was placed on ascending doses of potas. iodide. In a month the pain had disappeared; he slept better; vision had risen to  $\frac{6}{7.5}$ , and the hemianopsia for form had partially disappeared, but still remained for red. There was marked concentric narrowing of the form field, still relatively greater for the hemianopic side, and under fatigue this threatened to increase. Indeed, on taking his field a second time while fatigued from the examination, it shrank back into the hemianopic field for form also. He had resumed his business, that of a dealer in general merchandise, but found that if his store were crowded with customers he became confused, his pain in the occipital region returned, and he was compelled to seek quiet.

On January 19, 1899,  $V.=\frac{6}{5}$ , miscalling the confusion letters. His wife reported him more talkative and like himself. He could bear the confusion of business better; could make out his railroad time-table with some difficulty, but was

unable to read a book or his newspaper without first spelling out each word.

On March 27, 1899, he could with some difficulty read his paper and conduct his business without trouble. The field of vision was nearly normal for form, but the hemianopic color fields persisted. He was not seen again until February 21, 1900, when he came with a return of the alexia and of his hemianopsia for both form and color, apparently due to great depression of health and spirit over the hopeless illness of an only son with Bright's disease.

At the present writing, February 1, 1901, Mr. W. has improved in his general conditions; has less occipital pain, memory is better, and visual disturbance is less annoying, but he readily lapses into the former conditions from fatigue or under any worry or annoyance in his place of business. He has obviously aged very rapidly during the past year. His hair, which was simply mixed with gray in January, 1900, is now white. The hemianopsia continues, but there is no additional contraction of the remaining field.

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## QUININE AMAUROSIS; ITS FREQUENCY AND REMOTE MANIFESTATIONS.

BY H. MOULTON, B.S., M.D.,  
FORT SMITH, ARK.

IN discussing "A Case of Quinine Amaurosis" in the January number of this JOURNAL, Dr. Alt remarks that he has "thought it not impossible that of the many cases of atrophy of the optic nerve which are observed here some might be due to the former habit of many people of eating quinine to prevent chills and fever." The probable correctness of this remark is sustained by the more recent pathological investigations of Holden<sup>1</sup> and de Schweinitz,<sup>2</sup> and by my own clinical observations. The degeneration of the retinal elements begins in a few hours after the sight is affected in experimental quinine blindness; consequently in every case some permanent impairment of function (contracted field) must remain.

<sup>1</sup> "Toxic Amblyopia," 1896.

<sup>2</sup> Arch. of Ophthal., Vol. XXVII., p. 583.



The rarity of observations of quinine amaurosis in view of the vast multitude of people who, in this section of the country particularly, take large doses of the drug, is frequently discussed. I have been enabled to report a single observation;<sup>3</sup> but in conversation with physicians I have heard of quite a number of persons who have been blind temporarily after large doses of quinine. As most cases of severe malarial intoxication requiring large doses of quinine occur in sections remote from large towns, and as recovery of normal central vision occurs spontaneously in nearly every case by the time the patient is up and around, it is obvious why many cases should occur and never appear in literature or even be observed by ophthalmologists. Nevertheless it remains true that an idiosyncrasy is necessary to determine the effect of quinine on sight and that only a very few have this idiosyncrasy—not enough to deter a physician from prescribing the drug in all cases as freely as he deems necessary.

The observations which I have made, and which bear out the remark of Dr. Alt, are two in number.

The first was in a negro child of 8 years, with vision of  $\frac{20}{40}$  when corrected. She had contracted fields, small retinal vessels, and pale optic nerve-heads. Her mother said that when 4 years old the child had taken some very heavy doses of quinine for a fever and was blind for a few days following, but soon recovered about the same degree of vision she now has. The child was in good health and free from discoverable hereditary taint. The parents were of the better class of negroes and the history I think can be relied upon.

The second observation was in Miss T., a refined young lady of 19 years and a perfect picture of health, who consulted me for an error of refraction. At the age of 4 years she had measles. During this sickness or shortly after Dr. B., of Brinkly, Ark., gave her one ounce of quinine sulphate in less than a week. During the time she was taking the quinine she lost her sight and was practically blind for many weeks without visible inflammation of the eyes. At the end of five months useful vision had been recovered and has remained without material change until now. It is of interest to add that the mother of the young lady thought that the blindness

<sup>3</sup>Ophthalmic Record, August, 1899.

was due to belladonna. It was only after being questioned that she told of the quinine. She was positive as to the amount of the drug and time of blindness, and she is a woman whose statements of facts can be relied upon. The possibility of the quinine affecting the eyes in such a way had not been suggested to her. My record of the case was made fifteen years after the blindness occurred. Central vision was good. With a mydriatic

R. E.,  $\frac{15}{20}$  with + .25 D. s.  $\bigcirc$  + 12.5 D. c. ax.  $45^\circ = \frac{15}{15}$ .

L. E.,  $\frac{15}{30}$  with + .25 D. s.  $\bigcirc$  + .50 D. c. ax.  $75^\circ = \frac{15}{15}$ .

Fields for form: R. E. concentrically contracted, nasally to  $30^\circ$ , above to  $20^\circ$ , temporarily to  $40^\circ$ , and below to  $25^\circ$ , from point of fixation.

L. E. nasally to  $40^\circ$ , above to  $25^\circ$ , temporally only to  $80^\circ$ , below to  $30^\circ$ .

The ophthalmoscope revealed white discs with all details distinct and the retinal vessels contracted to less than half their normal size. No other fundus lesions were present.

Knies, in "The Eye in General Diseases," and Story, in Norris and Oliver's "System of Diseases of the Eye," discuss the rare recorded cases of defective sight following measles. All of those cases, however, except one are definitely ascribed to optic neuritis accompanying cerebral or meningeal inflammation or to lesions of the occipital lobe. The exception was a case observed by Carreras y Arago, of "extreme amblyopia with contracted retinal arteries." In my case there was no history or evidence of any intracranial complication and no suggestion in the appearance of the fundus of a former neuritis. It seems just to ascribe the case to the quinine, first because of the dose, second because of the perfect accord with the well-known facts of quinine amaurosis.

These two cases might well have been classed as simple optic atrophy of obscure origin had not the histories been closely inquired into. I believe the remote effects of quinine on the retina and optic nerve exist more often than they are recognized. With good central vision the contracted field to which he has become accustomed is not complained of by the patient and the narrow vessels and white discs are not seen unless accidentally discovered by the ophthalmologist in his routine daily work.



The same idea is borne out by the case of the three-year-old child formerly reported, which I had the privilege of seeing two years after my first observation. The same appearances remained that were noted at first. The white discoloration of the optic discs was just as intense and the arteries and veins were just as narrow. Useful vision had returned, but in the last year had not seemed to improve much.

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### OPTICO-CILIARY RESECTION IN CASES OF ABSOLUTE GLAUCOMA.\*

By DR. FAGE,

AMIENS, FRANCE.

*Translated by Adolf Alt, M.D., St. Louis, Mo.*

IT is well known that the classic operations, like iridectomy, sclerotomy, etc., are dangerous or of no value in eyes which have reached the absolute stage of glaucoma. If an acute attack should occur, the only remedy left would be enucleation.

From this consideration, optico-ciliary resection should be employed more frequently, for it is a means which, while conserving the shape and volume of the eyeball, allows of a diminution of the hardness of the eye, and stops the irritative phenomena and the pains. Of course, this concerns only such eyes as are definitely deprived of all vision; furthermore, this intervention cannot but render the enucleation more easy of execution, if this should later on become necessary.

It is well known that this operation was first devised by Rondeau (1866), and employed later by Boucheron (1876), who demonstrated how easy of performance it is, and what its advantages are.

In a few words, this is the procedure: The conjunctiva and Tenon's capsule are cut at the point where the Rectus internus is inserted. Then this muscle is lifted up with a strabismus hook, a thread is passed through it to prevent its retraction, and then its tendon is cut just at its scleral insertion. Then the eyeball is turned temporally, and with a pair

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\*Archives d'Ophthalmologie, December, 1900.

of scissors, curved on the flat, the optic nerve, the ciliary nerves and the ciliary blood-vessels are cut. Warlomont and de Wecker have constructed compressing scissors for this operation, in order to stop the hæmorrhage.

As soon as the nerve has been severed, the eyeball is turned temporally as far as possible, so as to expose its posterior pole to view, and to enable the operator to remove the part of the nerve remaining attached to the eyeball. Then the eyeball is replaced into its normal position, and after the hæmorrhage has been stopped by slight compression, the rectus internus is stitched to the sclerotic at its normal insertion. Then a compressive bandage is applied.

Some operators have proposed to cut the optic nerve by means of a button-hole opening in the conjunctiva and Tenon's capsule, without severing any of the Rectus muscles. According to our opinion, this procedure increases the difficulty of the operation instead of simplifying it; besides, it allows only of the simple section of the nerve, which offers fewer chances of success than does the resection.

With a little practice the operation, as we have described it, is easily made. In some individuals the anæsthesia produced by the subconjunctival injection of cocaine has been all that was required.

What we have to be afraid of most is an intraorbital hæmorrhage. This may become profuse enough to cause a strong exophthalmus, produce troubles in the nutrition, and facilitate ulceration of the cornea. In one case this has forced me to enucleate an eye three days after the neurectomy, and some operators have had to do this at once. Usually, this hæmorrhage is moderate and stops on compression, and the eyeball returns entirely into its position in the orbit.

When there is no important exophthalmus, an ulceration of the cornea is hardly to be dreaded. According to Boucheron, this may be explained by the fact that there are superficial ciliary nerves which insure the nutrition of this membrane.

We have been in a position to observe three of our cases long enough to draw some conclusions. In one case, in a woman, 57 years of age, an irritative chronic glaucoma had become absolute. In the other two cases we had to deal with



eyes afflicted with adherent leucoma, with absence of anterior chamber, considerable increase of intraocular tension, and even severe pains in one of the cases, who had previously been advised to have the eye enucleated.

After the optico-ciliary resection the irritation disappears, the pains cease, and, what is very important, the tension is sensibly reduced. Such eyes which were previously stretched, staphylomatous or buphthalmic, show a tendency to become smaller.

When we think that an eyeball which has once arrived at the period of absolute glaucoma contains in its irido-corneal angle such conditions for retention that, even when enucleated, it will remain hard for at least several hours, it is difficult at first to admit that the optico-ciliary neurectomy can have any influence upon the intraocular tension.

Yet it is well to remember, that the peri-choroidal space is in communication with the intervaginal space of the optic nerve by means of fissures, the termini of which are undoubtedly obstructed at the level of an excavated and sclerosed papilla optica. The cutting of the optic nerve may reopen these routes of excretion, and this fact, as insignificant as it may be, is a factor which we cannot neglect.

Moreover, the cutting of the ciliary nerves diminishes the secretion of the aqueous humor. This fact has been established experimentally by Nicati. That the hypertonus lasts only a few hours in the enucleated glaucomatous eyeball, is due to the fact that the secretion of aqueous humor becomes less as soon as the action of the ciliary nerves is interrupted.

From all this, the optico-ciliary resection answers to two indications, to which every antiglaucomatous procedure must correspond:

1. It moderates or lessens the secretion of the aqueous humor through the section of the ciliary nerves.

2. It favors the filtration by means of the papillary channels by widely opening the sheaths of the optic nerve.

Undoubtedly the successes are not absolutely constant. We have above mentioned the most frequent complications, intraorbital hæmorrhage, great exophthalmus, ulceration of the cornea; yet we have also shown how, with a little operative ability, these can generally be avoided.

We have also noted a recurrence of the pain, and even a post-operative papillitis of the fellow-eye. This is explained by the regeneration of the ciliary nerves, the possibility of which Bietti has demonstrated. This is a fact which must force us to renounce an optico-ciliary resection whenever we can suspect a sympathetic ophthalmia.

But when this complication is not to be feared, and this is generally the case with glaucomatous eyes, the optico-ciliary section or better the resection is an excellent operation, and deserves in future to be more frequently resorted to.

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#### PAMPHLETS RECEIVED.

“A Case of Sinus Thrombosis,” by A. R. Baker, M.D.

“Corneal Corpuscular Activity,” by J. E. Willetts, M.D.

“On the Clearing Up of Corneal Scars,” by Prof. E. Fuchs, M.D.

“On a Case of Otitic Cerebral Abscess,” by Prof. G. Gradenico, M.D.

“Detachment of the Choroid after Cataract Extraction,” by Prof. E. Fuchs, M.D.

“Medical and Surgical Experiences in the South African War,” by G. S. Ryerson, M.D.

“Clinical Study of the Ocular Symptoms Found in So-Called Posterior Spinal Sclerosis,” by Ch. A. Oliver, M.D.

“The Influence of Abducting and Adducting Prisms on the Estimating of Distance,” by J. A. Lippincott, M.D.

“A Clinical and Histologic Study of a Case of Melanotic Sarcoma of the Choroid, Presenting Symptoms of Secondary Glaucoma,” by Ch. A. Oliver, M.D.



## ABSTRACTS FROM MEDICAL LITERATURE.

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By W. A. SHOEMAKER, M.D.  
ST. LOUIS, MO.

### COMPARATIVE VALUE OF ENUCLEATION AND THE OPERATIONS WHICH HAVE BEEN SUBSTITUTED FOR IT.

G. E. de Schweinitz, in a paper read before the Thirteenth International Congress at Paris, reaches the following conclusions:

1. Eyes so diseased or injured that they already excited sympathetic ophthalmitis, or eyes which contain malignant growths, should be enucleated.

2. Eyes in which a suppurative process has begun may be enucleated with safety, provided the process has not involved the surrounding orbital tissues or already begun to extend posteriorly so that it would be difficult to obtain an aseptic socket; otherwise evisceration is the safer operation.

3. The eyes so wounded that they are likely to excite sympathetic ophthalmitis should be enucleated, if two weeks or more have elapsed since the reception of the injury, because under these circumstances enucleation affords a greater security to the patient than any of its substitutes. If the eye is so injured that the sclera is extensively lacerated, enucleation is also indicated.

4. Eyes so wounded that they are likely to excite sympathetic ophthalmitis, if seen before two weeks have elapsed, need not be enucleated—that is, evisceration or Mules's operation may be performed, because, with perhaps the exception of a single case, there is no positive proof that these operations have of themselves excited sympathetic disease. They may fail to arrest the development of sympathetic ophthalmitis, just as enucleation may meet with a similar failure.

5. Staphylomatous eyeballs, especially when they occur in children, need not, in fact should not, be enucleated. When uninflamed, they may be treated by the operation of abscission or complete keratectomy primarily with safety, but it cannot be promised that subsequently, it may be years after-

wards, the stump will not undergo calcarious or osseous change which may excite sympathetic irritation in the other eye and require enucleation. Staphylomatous eyes are suited to Mules's operation.

6. Eyes which are greatly shrunken (excessive phthisis bulbi) should be enucleated, as they do not lend themselves with safety either to evisceration or to Mules's operation.

7. Painful blind glaucomatous eyeballs, or eyeballs blind from chronic non-traumatic iridocyclitis, may be treated by evisceration, with or without the insertion of an artificial vitreous, in the place of enucleation, with safety. They furnish one of the few indications for opticociliary neurotomy, or neurectomy if enucleation or one of its substitutes should be refused by the patient.

8. Enucleation is preferable in very old patients, when the time element is important and when physical condition is such that the prolongation of convalescence is undesirable.

9. Evisceration as a substitute for enucleation is a safe operation, and temporarily yields a stump which is better than the stump after ordinary simple enucleation. Subsequent shrinkage of this stump, however, ultimately renders the cosmetic effect of the operation no better than ordinary enucleation, while its inconveniences are much greater.

10. The best cosmetic results among the substitutes for enucleations, if successful abscissions are excluded, are secured by Mules's operation, which is only positively contraindicated by malignant disease, sympathetic ophthalmitis, extensive laceration of the sclera, and extreme phthisis bulbi. But it should be remembered that the primary excellent cosmetic effect of Mules's operation slowly lessens, owing to atrophy of the tissue of the orbit and sinking in of the artificial globe. This diminution in the volume of the stump is, however, much less marked than after simple evisceration.

11. Whenever a complete enucleation is performed, there is no objection to the implantation of a glass ball or of a piece of sponge into Tenon's capsule, except perhaps after enucleation for sympathetic and malignant disease, but it is doubtful if the ultimate cosmetic advantage of the operation exceeds that of a carefully performed enucleation.

12. There is no perfect substitute for enucleation, and



necessarily this operation must continue to be performed in many, if not in the majority of cases. When it is performed according to the rules of improved technique, which include suture of the severed tendons to the conjunctiva, the cosmetic effect of the operation is, primarily at least, as good as any of the substitutes, with the exception of Mules's operation and abscission, and is free from the objections which surround them. It seems likely that with further improvement in technique, and particularly in the manufacture of artificial eyes, the cosmetic effect will be enhanced and render less objectionable the operation of enucleation and less necessary the substitutes for it.

13. An enucleation which pays no attention to the preservation of the relationship between the conjunctiva, ocular tendons, and capsule of Tenon, is a brutal operation which should not be performed unless the disease of the globe and surrounding orbit is of such a character as to render this precaution impossible.

The foregoing conclusions seem to be warranted by the statistical information gathered in this paper, although I fully realize that some of them will not be acceptable to all of the 117 surgeons who have contributed their experience. For example, a number of operators undoubtedly would reject conclusions 2 and 4, although they are in accord with the surgical beliefs of others. So, too, the final sentence in conclusion 5 is in direct discord with some of the recorded opinions, but in equally direct accord with the views of others. In other words, in these conclusions I have endeavored to epitomize the opinions which have been expressed by the various surgeons, although necessarily it was impossible to construct a series of deductions which would be equally acceptable to all contributors. Personally, they seem to me to represent a safe line of practice. In those cases in which complete enucleation is not demanded—and in my opinion they are in the minority—Mules's operation, when successful, certainly furnishes admirable results, but I feel sure that although at the present time, from the cosmetic standpoint, it seems to be one of the best, if not the best, of the substitutes for enucleation, it is not likely to endure as an operative measure in ophthalmic surgery unless the percentage of failure is greatly reduced. I

believe, as I have stated in conclusion 12, that improvement in the technique of performing the operation of enucleation and in the manufacture of artificial eyes will probably be so great in the future that this and other substitutes for enucleation will seldom be required.

#### ON A NEW METHOD IN THE DISCISSION OF SOFT CATARACTS.

Percy Dunn (*Lancet*, December 29, 1900) believes that the rapid absorption of soft lens matter from the anterior chamber can only occur after the *reduction of intraocular tension* by the removal of the aqueous humor. In order to accomplish this and to overcome some of the disadvantages of the present methods of discission, the author proceeds as follows: The pupil having been well dilated with atropine and the patient anaesthetized with chloroform, a broad cataract needle is passed through the cornea and a vertical and horizontal incision made in the lens capsule. The lens matter having been broken up and the needle partially withdrawn, the latter is turned on its axis, thereby allowing the aqueous humor to escape slowly. On the fourth day but a small quantity of the lens matter remains in the anterior chamber, and but a trace on the fourteenth day. He believes that iritis will not follow this operation as a result of mechanical irritation, but only when antiseptic procedures have been improperly followed.

The author believes that after the aqueous humor is once properly evacuated, the swollen lens would allow only enough to be resecreted to restore the normal tension.

#### OCULAR MANIFESTATIONS OF DIABETES MELLITUS.

L. A. W. Alleman (*Journal of the American Medical Association*, January 26, 1901) calls attention to the fact that ocular manifestations occur with sufficient frequency in systemic affections to be of great value in diagnosis. While the conditions of the fundus in the advance stages of general diseases have received careful attention and study, the earlier conditions, on the other hand, also require careful scrutiny and investigation. Ocular complications may exist in all forms of diabetes, but are generally found in chronic cases.



The patients generally present themselves for supposed refractive errors. The author refers to a few cases on record in which hypermetropia was caused by diabetes and which fluctuated in amount with the variations of the quantity of sugar in the urine. According to Landolt this is due to a change in the index of refraction of the vitreous. Paralysis of the extraocular muscles are supposed to be due to a peripheral neuritis or to nuclear or peripheral hæmorrhages. Paralysis or paresis of accommodation is a frequent early symptom. The author believes that cataract occurring in diabetes in cases past middle life is due to a general disturbance of nutrition and arterial degeneration; in the young, on the other hand, there is some direct relation between the eye and the general disturbance. He argues with Hirschberg, that there is a distinct diabetic retinitis, characterized either by a degenerative or hæmorrhagic type.

Retinal hæmorrhages, with or without other changes in the retina, accompanied or unaccompanied with conjunctival hæmorrhages, are always suggestive of diabetes. Symptoms of toxic amblyopia frequently occur in diabetes, without a history of excessive indulgence in tobacco or alcohol. Plastic iritis is also encountered in diabetes; keratitis, which is notably an exponent of nutrition disturbances, occurs in this disease. Atrophy of the optic nerve and amblyopia without any assignable cause are occasionally encountered.

#### EXPERIMENTS WITH EYE MAGNETS.

I. Türk (*Berliner Klinische Wochenschrift*, Oct. 8, 1900) believes that there are two methods for extracting splinters from the eye. The methods, however, are not to be differentiated by the size of the magnet that is employed (respectively the large magnet by Haab and the small magnet by Hirschberg) or the relative number of experiments, but by the operative procedure that is employed. He believes that the small magnet, which in the majority of cases must necessarily be introduced into the vitreous and cause injury to various tissues of the eye, is inferior to the large magnet which, even upon external application, generally exerts sufficient force to withdraw the splinter out of the wound it origin-

ally produced, or to conduct it to the anterior portion of the eye so that a simple corneal section will be sufficient to render its extraction easy. Formerly the indications for the employment of either one of the magnets has been upon former clinical experiments. The author, however, has made a series of experiments regarding the attractive power of the two magnets upon splinters of a given weight and at given distances. In the cases of the large magnets the current employed was from 1 to 13 ampères, and in the small magnet from  $3\frac{1}{2}$  to  $4\frac{1}{2}$  ampères. The result of the author's experiments are as follows: The small magnet is preferable when it can be approached within a few millimeters of the splinter without injury to the vitreous. This includes those foreign bodies in the anterior chamber, posterior chamber, iris or lens which can easily be reached by a corneal section. In more deeply situated foreign bodies, where the small magnet can only avail after penetrating the vitreous, the application of the large magnet is indicated. The stronger magnet when properly applied is not only the more effective, but also the least dangerous.—*Philadelphia Medical Journal*.

#### A CLINICAL STUDY OF ONE HUNDRED AND FIFTY CASES OF HYPERPHORIA.

Wendell Reber, in a paper read before the Section of Ophthalmology at the fifty-first annual meeting of the American Medical Association, June 5-8, 1900, draws the following conclusions:

1. Hyperphoria occurs in about one out of six patients who seek counsel of the ophthalmologist.
2. It is present to the extent of .5 degree or more in one out of three refraction cases.
3. It becomes worthy of special attention in about one out of five refraction cases.
4. It is more likely to be latent before the 30th year—33 per cent. of all cases—and manifest after that time.
5. It occurs most frequently to the extent of about one degree.
6. The most frequent symptoms are supraorbital, temporal, and occipital neuralgias, photophobia, drowsiness, and abnormal physical tire after prolonged near work.



7. A full quota of sleep, daily open-air exercise, and a well-regulated life are all highly important factors in trying to make hyperphorics comfortable.

8. Hyperphoria is found a little oftener associated with esophoria—57 per cent.—than with exophoria—37 per cent. This is probably because compound hyperopic astigmatism with its associated convergence-excess outnumbers all other anomalies of refraction.

9. Convergence-training—if convergence be insufficient—and convergence-repression—if convergence be excessive—frequently relieve hyperphoric symptoms entirely.

10. *The vertical prism has a field of pronounced usefulness.*

11. Prism corrections will be of service in about 50 per cent. of all cases. One-half to two-thirds of the hyperphoria may be corrected for infinity and two-thirds to the full amount for work at the occupation distance.

12. When all these means have been exhausted, section of some one of the vertical muscles may be thought of. About one out of twenty hyperphorics whose deviation is two degrees or more will profit more by tenotomy than by any other treatment. Two or three degrees is likely to be the amount permanently obtained by vertical tenotomy.

13. The only fruit that can be borne of the attempt at hospital or dispensary treatment of hyperphoria—or for that matter any but the simplest muscular anomalies—is vanity and vexation of spirit.

In concluding the author stated that he always does a *complete* tenotomy without fear of an over-correction. That we know very little about the physiology of the ocular muscles; that there are six pairs of muscles; that no one is concerned alone in any movement of the eyes, and that according to Volkman there are something near two hundred possible combinations of these movements, we will perhaps realize how empirical our knowledge is.

#### THE RADICAL TREATMENT OF LACRYMAL DISEASES.

Walter B. Lancaster (*Boston Medical and Surgical Journal*, January 10, 1901) thinks the great majority of cases of epiphora are amenable to the usual conservative treatment,

which consists of astringents and antiseptic collyria, syringing and probing, and proper treatment of the nasal cavities. In spite of a judicious selection and skillful application of these methods, there remain a considerable number of cases which are not relieved. These are the cases for which something more radical must be done, and any method that promises quick and sure relief is worthy of attention. Such a method it is claimed is to be found in *extirpation of the lacrymal sac and gland*. In the case of a woman with an absolutely impermeable nasal duct and a lacrymal sac distended to the size of a small lemon by the long duration of the disease, the sac filled with muco-pus, the patient was willing to undergo any operation necessary to gain quick relief. The lacrymal sac was removed and the disease was cured. Removal of the sac takes away the source of irritation, and not only does away with the disease of the sac and its dangers, but diminishes the flow of tears materially. The removal of the larger lacrymal gland causes surprisingly little diminution in the apparent moisture of the conjunctival sac. It is only when the eye is exposed to some irritation that the difference is usually apparent, and then the diminution is slight. There is never an absolute dryness. There are some cases in which removal of the gland without the removal of the sac seems to promise relief, and if so is to be preferred. The dangers of the operation are: disfigurement, orbital abscess, injury to the optic nerve and the cornea, and ptosis. The possibility of excessive dryness is conceivable perhaps, but has never occurred so far as the author is aware. The history of five cases is given.

SUCCESSFUL REMOVAL OF CATARACTS IN INSANE SUBJECTS,  
WITH RECOVERY OF MIND ATTENDING THE  
RESTORATION OF SIGHT.

William C. Posey (*University Medical Magazine*, December, 1900) reports two cases in which removal of a cataract in chronic insanity produced a rapid and complete cure of the mental disease. In both cases there seemed to be from the history a direct relation between the mental disease and the failure of vision. This may account for the result.



TUBERCULOSIS OF THE EYE; ITS DIFFERENTIAL DIAGNOSIS,  
PATHOLOGY AND TREATMENT.

Charles Stedman Bull (*Medical Record*, December 8, 1900) regards tuberculosis of the eye as rare as its diagnosis is difficult, as in many cases the bacilli and the giant-cells are the only determining factors. Tuberculous ulcers of the conjunctiva and lids usually occur through the infection of some abrasion, and when they do, the lymphatic glands around the ear are also involved. When the process is primary, the prognosis is favorable. The sclera and cornea are often invaded and show great resistance. The invasion of the nerve-tract is usually secondary. The iris and ciliary body are sometimes invaded by the disease in the primary form and usually results in phthisis bulbi. When the retina or optic nerve is involved it is usually an extension from the meninges. No cases of primary tuberculosis of the orbit have ever been reported.

ESTIMATION OF THE AMOUNT OF INJURY TO THE EARNING  
CAPACITY OF THE INDIVIDUAL FROM PARTIAL OR  
COMPLETE LOSS OF VISION.

Howard F. Hansell (*Annals of Ophthalmology*, October, 1900) draws the following conclusions: Blindness is that degree of loss of vision that incapacitates one from earning his living in any occupation requiring the use of the sense of sight, the degree varying according to the demands of the occupation. Vision of less than one-half diminishes the earning power, and the less the vision the greater the loss of the earning power. Monocular blindness is not incompatible with full earning capacity. The loss of earning power owing to defective vision may be computed according to a simple system based upon the ratio of the loss of vision to the full earning capacity at any age and in most occupations.

## MISCELLANY.

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At the meeting of the Section of Ophthalmology, College of Physicians and Surgeons, held on January 15, 1901, Dr. S. D. Risley gave the clinical history of a case of "Inflammatory Glaucoma Presenting Uniform Features" in a woman, aged 71 years, of gouty diathesis. The attack followed a group of cases of acute conjunctivitis in the family, and was mistaken and treated by physician for that disease for ten days, at the end of which time  $T. = + 3$ , vision reduced to fingers at one foot, and field narrowed almost to fixation point. She was detained in the office and repeated instillations of eserine solution made, under which the pain subsided and vision rose to counting fingers at one meter. Before being dismissed she complained of pain in the right eye and dim sight. On examination the anterior perforating vessels were found dilated, anterior chamber shallow,  $T. = + 2$ , and pulsation in the retinal arteries which had before been absent,  $V. = \frac{1}{10}$ . Under eserine and salicylates,  $T.$  normal in both eyes next morning, and in O. D.  $V. = \frac{6}{6}$ , with normal field, and in O. S.  $= \frac{6}{10}$ , with temporal field contracted to fixation point and elsewhere to  $10^\circ$ . Following attack of indigestion, symptoms returned in O. S. and iridectomy was performed. Two weeks later she suffered an onset of glaucoma in O. D., notwithstanding that eserine had been instilled regularly during residence in hospital. Iridectomy resulted in great improvement in sight in twenty-four hours, but dimness supervened in forty-eight hours from extensive hæmorrhage which spread over anterior and posterior surfaces of lens. Dr. Risley said that but for the accident of having witnessed the attack of acute transient glaucoma in the right eye prior to the operation upon the left, this case would have furnished an illustration of the tradition that iridectomy upon a glaucomatous eye was likely to precipitate an attack of the disease in the previously healthy fellow-eye.

DISCUSSION.—Dr. de Schweinitz referred to an analogous instance occurring in a woman, aged 65, on whom he had per-



formed iridectomy on the right eye for inflammatory glaucoma. From his experience he believed that where acute inflammatory glaucoma attacked one eye, the other eye was almost certain sooner or later to be similarly affected, and he strongly advised that an iridectomy be performed on the good eye before an outbreak of the disease had complicated the operation and damaged the eye, especially if at any time, either before or after the iridectomy on the opposite eye, the apparently sound eye had exhibited any of the prodromal signs of glaucoma. In reply to a question by Dr. Harlan, he said that he knew there were cases in which the disease had not shown itself in the good eye even many years after the primary attack in the other eye, but nevertheless he considered that an iridectomy not only relieved the patient of the constant anxiety, but gave the most certain hope of checking the disease. He had been informed by Dr. Borsch, formerly on de Wecker's staff, that that surgeon performed an anterior sclerotomy upon the healthy eye at the time the iridectomy was made upon the glaucomatous ball. In cases of iridectomy in glaucoma, de Wecker preferred at first making a sclerotomy and several weeks later the iridectomy.

Dr. Risley said that he was quite in accord with Dr. de Schweinitz regarding the advisability of iridectomy on the fellow-eye as a prophylactic measure, since in a vast majority of cases the second eye was also sooner or later attacked by the disease. Iridectomy, he thought, would remove a source of anxiety from both patient and surgeon. During an acute glaucoma the shallow anterior chamber made successful peripheral iridectomy a very difficult operation, and the profuse bleeding from the cut iris often made it necessary to close the eye with the anterior chamber filled with blood, which he believed often led to partial capsular opacity and prolonged convalescence; whereas, in a healthy eye, the operation was comparatively an easy one and fraught with much less danger from complications.

Dr. Zentmayer referred to a case of subacute glaucoma in a patient, 68 years of age, where, twenty-four hours after an iridectomy, the sight of the fellow eye, the optic nerve of which presented a doubtful pathological excavation, rapidly failed, declining from  $\frac{5}{6}$  to L. P., with T. + 2.

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## ORIGINAL ARTICLES.

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### A CASE OF MYO-FIBRO-SARCOMA OF THE ORBIT.

(With Micro-Photographs.)

By ADOLF ALT, M.D.

ON January 23, 1901, E. G., a cowboy from Arkansas, was brought to my office for consultation. The history given by Dr. Meade, the physician accompanying him, was that about a year previously a swelling had been noticed in the left lower lid at the nasal canthus, which kept on growing to the apparent size of a walnut. Some physician then made an attempt to remove the tumor, which proved, however, absolutely abortive. About a month previous to his consulting me, the physician, who came with the patient, had also tried to remove the tumor, but this operation had evidently to some extent remained incomplete, because the patient did not take an anæsthetic kindly and could not stand any further pain. Still, by this operation a tumor of the size of a small walnut was removed from the *lower lid*. The wound healed kindly. There had been no exophthalmus observed *at any time*, nor was there any double vision; yet there was evidently still a tumor in the *orbit*, behind the lacrymal caruncle, and the question was what to do with it.

On palpation, I felt a round, semi-hard, smooth tumor situated behind the lacrymal sac and immovably connected with



the periosteum. It was even now not large enough to cause any exophthalmus and did not seem to reach far back into the orbit. Of course, I advised the immediate and thorough removal of all of the pathological tissue, after splitting the inner canthus, so as to have an easy access to the parts, the lacrymal drainage apparatus having been previously destroyed.

The operation was made in this manner on the same day by Dr. N. B. Carson, of this city, through whose kindness I obtained this specimen. The specimen removed by the former

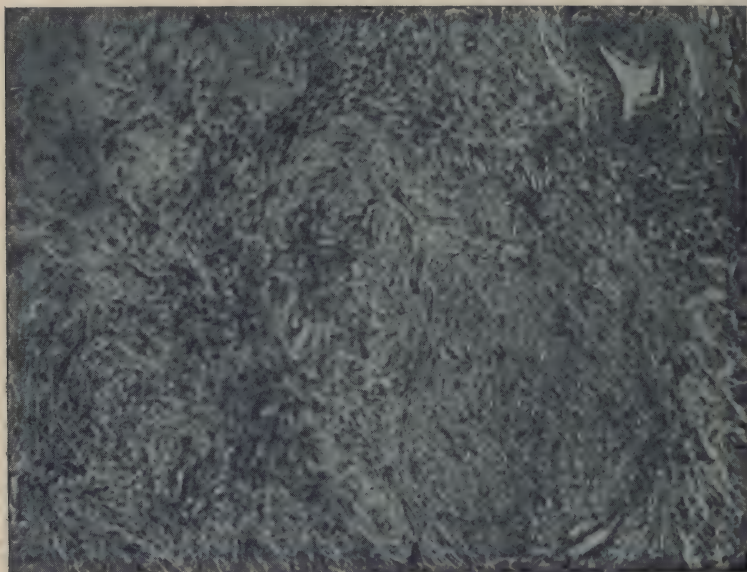


FIG. 1.

operation I had also obtained through the kindness of Dr. Meade.

The whole mass together was about the size of a walnut. It was hardened in formol and then in alcohol and embedded in celloidin.

The tumor shows very much the same structure in all its parts, and consists, in the main, of dense fibrous tissue, mixed with a much larger quantity of long slender spindle cells with the characteristic rod-shaped nucleus, which are undoubtedly non-striated muscular fibres. These, like the fibrous tissue, are arranged in bundles of different sizes, and the two kinds of tissue are very closely interwoven. (See Fig. 1.)

Here and there round cells are found in the interstitial tissue and around some of the very numerous blood-vessels which the tumor contains.

The muscular coat of most of the blood-vessels is very thick. In many places, in every specimen, muscular fibres are seen to grow away from the blood-vessel into the surrounding tumor-tissue. In some instances all of the regularly arranged muscular coat of the blood-vessels has gone up in the tumor-tissue, and what was a blood-vessel is now but a narrower or

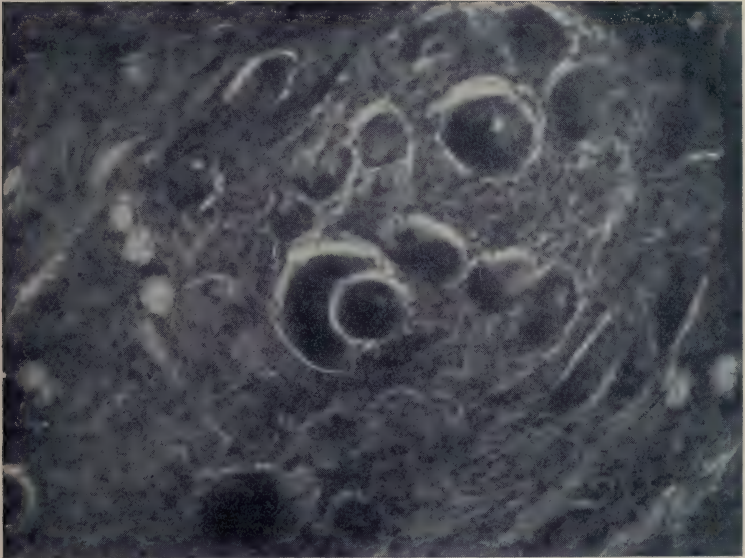


FIG. 2.

wider slit in the tissue which contains blood. In many places such slits are still lined with normal endothelial cells; in others even the endothelial cells have disappeared.

From these facts it is, I think, evident that the muscular fibres forming most of this tumor have taken their origin from the muscular coat of the blood-vessels.

The tumor further contains in one place a larger aggregation of giant cells. They are stained very deeply with hæmatoxyline, and while numerous nuclei may still be seen in them, they evidently contain a material which looks very much like amorphous lime and which is, perhaps, an organic lime combination, the forerunner of bone-formation. (See Fig. 2.)



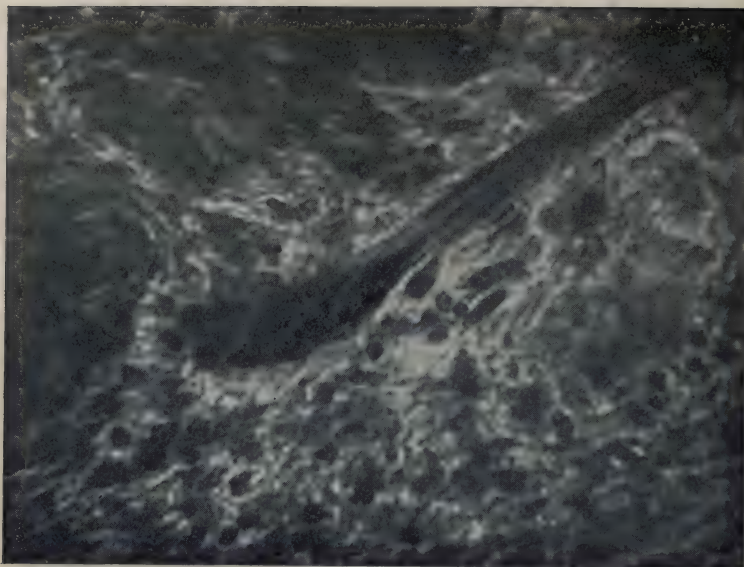


FIG. 3.

Indeed, in other parts there are larger deposits of crystals and crystalloid formations, which are decidedly lime. (See



FIG. 4.

Fig. 3.) These are surrounded by numerous giant cells with very numerous nuclei. Some of them show bone structure. (See Fig. 4.)

The tissues surrounding the tumor are greatly infiltrated with round cells, and, I believe, the sarcomatous character of the growth cannot be doubted.

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## A CASE OF SUDDEN BLINDNESS.

By HOWARD F. HANSELL, M.D.,

PHILADELPHIA, PA.

JANUARY 14, 1901, my friend, Dr. Freas, of Philadelphia, brought to the Jefferson Hospital John McCullough, a white man, 39 years of age. He is a large-framed muscular man, a worker in an iron foundry, and seemed to be in perfect health. He had been entirely blind in both eyes for seven days. During the night, seven days previously, he awoke to find that he was unable to perceive the light of a match; in the morning he found all light perception had gone. At the time of the examination he could not see in any part of the field a thirty-two candle power electric lamp when held close before him. The eyes were free from all indications of inflammation, there was no external ocular paralysis; the pupils were widely dilated, unresponsive to light and responsive to convergence and accommodative efforts; the media were clear; the optic papillæ were slightly veiled, the retinal veins dilated tortuous, and the arteries contracted. These changes in the vessels were, however, not particularly marked, but were undoubtedly present. The retinae were not cedematous nor were there any patches of exudation, or of connective tissue hyperplasia, or of hæmorrhages. The man's intellect was unimpaired. He complained of no pain, dizziness, vomiting, paralysis, or any alteration from the normal function of any of the organs. Repeated examination of the urine showed absence of sugar or of albumin. There was no heart or lung affection, and he had not suffered from any accident or fall, abscess or sore in any part of his body. He denies specific history, nor were there indications that he was not speaking the truth.

The data for determining upon a definite diagnosis were insufficient, but I made a tentative diagnosis of a lesion from hæmorrhage or a new growth in the region of the chiasm. Vascularity of the retina indicated probable pressure upon the



blood-vessels supplying the deeper portion of the eye immediately back of the apices of the orbits and the absolute loss of function of both optic nerves, and the slight œdema of the nerve leads me to believe that the lesion was in, or immediately in front of, the chiasm. There was no loss of sensibility of the fifth pair in any of its branches. The cavities accessory to the orbit were well illuminated by the electric light. Dr. Gibb, of the Polyclinic Hospital, who examined the patient later, decided that the origin of the trouble was not to be found in the nasal, ethmoid or sphenoidal cavities.

The treatment consisted in daily pilocarpine sweats, mercurial inunctions, inhalations of nitrite of amyl, and the administration of nitroglycerine. On the third day after this treatment was instituted light perception returned to the right eye, and on the fourth day to the left eye. The improvement in the vision daily was quite rapid for several days, and since then has been extremely slow. At the end of two weeks the right eye had recovered ability to count fingers at several feet, and in the left eye the perception of light and the counting of fingers close to the eye on the temporal part of the field. It was found at this examination that in the right there were no scotomata and that light could be seen in all parts of the field; in the left eye, however, a little more than the nasal half of the field was blind to light. The treatment was modified by the cessation of the baths and the inunctions and the addition of  $\frac{1}{20}$  gr. strychnine, t. d.; the nitrite of amyl was continued since the patient stated that after each inhalation his vision seemed to be better. The nitroglycerine also was continued.

The examination made January 26th, six weeks after the onset of the blindness, resulted in practically the same findings. The loss of the nasal half of the field of the left eye was unchanged. The exact definition of the blind field was difficult to determine, but the boundary between the blind and seeing fields seemed to be exactly vertical and several degrees to the temporal side of the plane of the fovea. The pupillary reactions to light had returned. The obstruction of the circulation, as shown by the arteries and dilated veins, was still acting. Both papillæ had now become entirely clear and had assumed the whiteness of atrophy. There was no hemianopic

pupil reaction of the left eye and the condition of the eyes and of vision at the last examination confirmed the diagnosis of the situation of the lesion in the chiasm. No further light has been thrown upon the etiology of the disease.

The last examination was made February 18th. The patient complained that during the past week vision had steadily declined, so that to-day he is scarcely able to find his way about the streets. The ophthalmoscope shows advancing atrophy of the nerves with further contraction of the arteries, the veins remaining unchanged. In the left eye perception of light remained on the nasal half of the retina only. The prognosis is extremely unfavorable. Degeneration of the nerves will probably continue until all light perception is gone. The treatment which seemed to be successful in the early period of the affection is now unavailing.

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## THE TEACHING OF OPHTHALMOLOGY IN MEDICAL SCHOOLS.

By F. L. HENDERSON, M.D.,

Professor of Ophthalmology in the Barnes Medical College; Ophthalmic Surgeon  
to St. Mary's Infirmary; Consulting Oculist to the Wabash Ry.  
and the Terminal Ry. Assn., etc.

ST. LOUIS, MO.

IN the February number of the *AMERICAN JOURNAL OF OPHTHALMOLOGY* Dr. Swan M. Burnett has published an article on the above subject, which he closes with the hope that others teachers will give expression to their opinions. My experience as a teacher of this branch has covered a period only one-third as long as Dr. Burnett's, but since this fact puts me many years nearer to the period of undergraduate life, I may be excused for offering my views.

There are many good reasons why the subject of medical teaching should occupy the attention of our profession. There are one hundred and fifty-eight medical schools in the United States, which contain about twenty-five thousand pupils. The number of graduates each year is between four and five thousand. These unfortunates are being subjected to an ordeal appalling in its severity. If you doubt it, examine the curriculum of any good four-year school, look over the text-books,



and then figure out the amount of time the student has in which to accomplish certain results. It will be found that accurate, definite, working knowledge of the twenty-six branches now taught is an impossibility. The result is that an over-conscientious few all but kill themselves and the rest devote their time to scheming upon how to "get through." Another fact which bears heavily on the situation is that medical professors are rarely selected on account of their teaching ability. Teaching is a secondary consideration—merely an incident in the week's work. It serves as a good, ethical medium for personal advertising and is too often used with that object exclusively in view. Modern theories of pedagogies are totally disregarded. The antiquated didactic lecture or "how I do it" is still the favorite method. The corollary of the lecture or *viva voce* method of teaching is the student's inaccurate and misleading note-book, which owing to the bulk of the printed text-books he uses to the exclusion of the latter.

The subject of medical text-books would itself take up the space of this article if one were to attempt to exploit their ridiculous unfitness. The text-books on ophthalmology are divided into two kinds: the large works, which contain so much as to be utterly useless to a student in the stress and anxiety of the senior year; and the small manuals, which give little enough, but fail to discriminate between the ophthalmology of the general practitioner and that of the specialist. I believe the so-called text-books on the other branches of medicine are similarly defective. The system of multiple text-books is observed nowhere except in medical teaching. I know of one professor who delivers but forty-eight lectures during the four years' course, yet recommends twenty-five text-books, most of them being the seven hundred-page variety. In every senior class of any size a dozen different works on the eye can be found, and each author as well as the teacher will, in all probability, have a different nomenclature and classification. This unnecessary lack of uniformity adds to the distress and confusion of the pupil.

Since my experience as a teacher has been limited to the chair of ophthalmology I will confine myself to a discussion of the conditions which confront a teacher of that branch of medicine. I believe I am justified in assuming that similar

conditions exist as regards the other departments. The majority of our schools teach ophthalmology only to the fourth-year class and allow two hours each week for this purpose. The average course being six months long, gives us forty-eight hours in all to teach the graduate what he must know of the eye. These hours are usually divided equally between didactic and clinical instruction. I believe the suggestions of Dr. Burnett relative to clinical teaching can not be improved upon. A fact, however, which must not be lost sight of in estimating the value of clinical instruction, is that the student's ignorance of the eye renders the clinics of the first half of the year more or less useless, the value of the clinics increasing with the progress of the didactic instruction. Any teacher who devotes his clinical hours to the major eye operations before an amphitheater full of students, not one of whom sees what is being done, is more interested in impressing the class with his skill than in impressing it with the elements of differential diagnosis.

Having twenty-four hours for didactic instruction, let us estimate how much time the student has for learning. There are usually five or six lectures a day, and if a student studies five or six hours each day outside of the college he has done as much as can reasonably be expected of him. After the long day in the lecture room, to study from 7 to 12 o'clock six nights in the week, and to keep it up for six months, requires good eyes, a sound mind, a strong constitution, and an equable disposition. For every hour of teaching there is then one hour of study, consequently forty-eight hours is all the student has to devote to ophthalmology outside of the class room. Having but twenty-four hours in which to teach didactically all that the student is to get before graduation, and the pupil having but forty-eight hours in which to learn all that he is expected to know, the question is, what shall he be taught? We are confronted by the fact that the amount of information which can be imparted in this time is distressingly small and the amount which can be assimilated is even less.

It should be the purpose of a medical school to provide its graduates with an equipment which will best meet the demands of general practice. I do not believe the elective system should enter into a medical curriculum, as undergraduate



specialism must result in unsymmetrical development. It has been maintained by the broadest medical minds that no man is properly prepared for special work until he has had experience as a general practitioner. The elective system is not only a subversion of this conception, but goes farther and would narrow the school training as well as the experience of the practitioner.

It is on the subject of what shall be taught that I differ radically from Dr. Burnett. After specifically calling attention to the limitations of time based upon the same figures that I have used, he proceeds to outline a course which would require vastly more time than he has at his disposal. My explanation of this discrepancy is that Dr. Burnett knows ophthalmology so well that he is not conscious of the difficulties attending its acquirement. Having taught for twenty years, it is so long since he wrestled with the true and false image that he confounds acquired and intuitive knowledge. I will quote him on the subjects which are to be taught in twenty-four hours. "This discussion of the anatomy of the eye should begin with a demonstration of the structure of the orbit and especially its relations to the accessory sinuses and the openings leading into the adjacent cavities, with an indication as to their significance in pathological conditions of each." "The macroscopic anatomy of the globe itself should be taught by dissected specimens." "The demonstration of the microscopic anatomy comes next."

Let us stop and think how many hours of our twenty-four it would take to teach the anatomy of the eye in this way to a class of from fifty to one hundred seniors. Ask any average student how many hours of his forty-eight it would take to learn it in this way. Next comes the study of the eye as an optical instrument, and we are told: "The methods of trigonometrical construction as followed in the little book of Mr. C. F. Prentice on 'Ophthalmic Lenses,' and by some others, is amply sufficient for the general student." I have yet to see a general student who will not agree that this is amply sufficient. On the subject of lenses, the pupil is supposed to go so far as to learn "the modes of designating them in the various inch and the metric systems." Next comes "a thorough demonstration of the schematic or reduced eye, emmetropia, accom-

modation and its anomalies, and the forms of ametropia and the means of correcting the latter with the principles underlying them. This is done by didactic lectures." Lectures in the plural is well used here, but how many of the twenty-four can we spare on ametropia? When he reaches the study of the eye as an organ of sense we find this: "Theories of color perception can be then gone over briefly." By this statement we are led to presume that the conceptions of Young, Helmholtz, Preyer, and Hering are to be detailed. I would suggest that the correlation theory as expounded by Oliver be not overlooked. Its beautiful simplicity may entertain the student in his idle moments. Later, "diplopia and its significance as to the special muscles involved" is to be studied. Unless Dr. Burnett's students possess a very different brand of intellect from those I have associated with, it will require not a few of the forty-eight hours to learn to determine the paretic muscle or muscles from the position of the false image.

What we have gone over is only preliminary—an introduction to the serious business of the course, which is the study of diseased conditions. As would naturally be presumed, from what has preceded, accuracy and thoroughness are expected. He says: "Particularly should the signs and symptoms of conjunctivitis, iritis, and glaucoma be so clearly pointed out and insisted upon as to make an error in diagnosis impossible." And as further evidence of the thoroughness with which he expects the diseased conditions to be studied, I quote again: "When possible, bacteriological preparations of all conjunctival discharges should be exhibited." Feeling that he has not given his students as much as they can learn in forty-eight hours he says: "As much practical experience should be given in examining the refraction of the eye by means of test glasses, the shadow test and the ophthalmoscope, as possible." This sounds so well that you think you are reading from a college catalogue, but I need not comment on the chances of having superfluous time enough to train the class in skiascopy, to say nothing of estimating refractive errors with the ophthalmoscope. I do not mean to say that such knowledge as is outlined in the above course is not desirable in the graduate. Nor do I mean to insinuate that a teacher could not



cover that much ground—we must assume from Dr. Burnett's article that he has done it. I do not see how he can do it, and I do not believe any student can keep up with him understandingly.

Having had the temerity to criticise Dr. Burnett's suggestions I will offer my own, hoping that the subject will be taken up by others, and that its agitation may result in improved methods. I will confine myself to the two propositions: What shall we teach the undergraduate? and how shall we teach him? my remarks being based upon the fact that we have but twenty-four didactic lectures and the student but forty-eight hours study to devote to ophthalmology.

In the first place the line of demarcation between the ophthalmology of the general practitioner and that of the specialist should be distinctly drawn. Time spent in teaching a student even a little about the ophthalmoscope, the fitting of glasses, skiascopy, eye surgery, etc., is wasted, as he does not learn enough along these lines to make use of his knowledge. There is also the danger of impressing him with the idea that he is an oculist, and we know the incalculable harm which is being done by the general practitioner who thinks he has fitted himself for refractive work when he has purchased a set of trial lenses. Microscopic anatomy of the eye, "methods of trigonometrical construction," testing for glasses, all except the simplest features of eye physiology, ophthalmoscopy, skiascopy, and eye surgery belong to post-graduate instruction and to the specialist. Any student who learns the layers of the retina consumes time which could be spent more profitably in a dozen other ways. When I open one of the seven-hundred page text-books "for students and practitioners" and see the formula for calculating the index of refraction of a transparent medium, I am led to wonder what kind of a book the author would write for specialists.

To be specific as to what should be taught, let me say it will take four weeks (an hour each week) to cover the gross anatomy of the eye, and unquestionably this should be the first thing acquired by the class. In two lectures can be given all the student has time to learn of refraction, physiology, etc. Diseases of the ocular muscles will take two lectures. Diseases of the lids also two, and the lachrymal ap-

paratus and orbits will have to be crowded into one. If the conjunctiva and the cornea are given in three lectures each we have consumed seventeen of our twenty-four hours, and the remaining seven can be disposed of by giving an hour each to the iris, ciliary body and choroid, the crystalline lens, glaucoma, the retina, the optic nerve, and functional disorders of vision. Diseases of the sclera will have to be taught in the lessons on the cornea, and sympathetic ophthalmia will naturally be treated of with diseases of the ciliary body. When the subject is thus subdivided it will be easily seen that there is no time for the superfluous, and that an enormous amount of elimination must occur. In fact there is barely enough time to teach differential diagnosis, to which our energies should be almost exclusively directed. Other teachers may divide the subject differently, but divide it as you will there is only time to touch the "high places," and every word taught should bear directly upon the problems which may confront the student in general practice. Leave skiascopy and such to the post-graduate schools.

Having, I hope, made myself clear on the subject of what should be taught the undergraduate student, the next and last question is, how shall we do it? I believe the prevalent system of extemporaneous lectures, multiple text-books and students scrappy, disconnected, inaccurate notes, to be about the hardest possible way for teacher and pupil and the one calculated to accomplish the least. There is very little more reason for teaching some parts of the course by lectures than for teaching arithmetic that way. Imagine if you can a high school class in physics, some of whom have quiz compends, some with lead pencil note-books and others with seven hundred page text-books (all different); then top this confusion with a teacher who tries to impart the subject in twenty-four extemporaneous lectures and you have a condition found in many of our medical schools. As a substitute for the prevailing system, I would suggest that the professor of ophthalmology make it obligatory for every pupil to possess or have access to a text-book of his selection. Let there be uniformity in the book used by the class. If teachers of every other branch of knowledge have the right to demand this of their pupils, the medical teacher has. The book selected should



contain just what the pupil is expected to know, not a page more or a page less. It should contain only as much as a student can learn in forty-eight hours hard study, and its substance should be of the nature heretofore indicated. It should be divided into twenty-four lessons, or one lesson for each didactic lecture of the course. Instead of devoting these precious twenty-four hours to telling the student what he must know, let the little text-book tell him, and devote the hours to quizzing and finding out if he has learned his lesson. During the quiz a professor will have ample opportunity for injecting his individual information. At intervals of four or six weeks a written examination on the lessons passed may be given, one of the clinic hours being used for the purpose. By grading students on the oral quiz and on their written papers a teacher will come up to the final examination with some idea of the individual merits of his pupils, and justice is more liable to be done than when a student stands or falls on the result of one examination.

The suggestions made may be summarized as follows:

1. Eliminate from the course all that pertains to the specialist, and acquaint the student with the fact that he is only getting a fragment of ophthalmology.

2. Teach only as much as the student can learn in the limited time at his disposal, and let all that is taught bear directly upon his needs as a general practitioner.

3. Pay special attention to the diagnosis of those diseases in which an error would be disastrous.

4. Abandon the lecture and its corollary, the student's note-book.

5. Prescribe a text-book which contains exactly what the pupil is expected to learn and no more. If a teacher can not find a book which suits him he should write one. It should not contain more than 150 pages,

6. Instead of the lecture devote the hour to quizzing, and at periods of six weeks give a written examination. Grade each student at every opportunity, so that his final standing may bear some relation to his merits.

The above plan is not purely theoretical; I have followed it for the past four years and have every reason to believe that I now teach my students more and with less effort and anxiety on their part.

## NOTES ON ADRENALIN.

(PARKE, DAVIS &amp; CO.)

By ADOLF ALT, M.D.

THE firm of Parke, Davis & Co. sent me on December 27, 1900, the following letter, which will explain itself:

DETROIT, MICH., December 27, 1900.

DEAR SIR: The special character of your work will give an added interest to the announcement that the *active principle of the suprarenal gland* has been isolated by a member of our scientific staff, Dr. Jokichi Takamine, the well-known inventor of taka-diastrase. We have now under way a process for producing this active principle (which we have named "adrenalin") on a large commercial scale, and we hope soon to have our first supplies ready for the market.

The clinical uses of the suprarenal gland have in the past appealed very strongly to general practitioners and specialists in the treatment of eye, ear, nose, throat, and heart diseases; hence it occurs to us that you may not be unwilling to test our adrenalin *before* we put it on the market. For this purpose we are venturing to send you a package of seven vials containing a small specimen of the adrenalin proper in basic crystalline form, and three solutions of the adrenalin chloride—1/1000, 1/5000 and 1/10000; also the same dilutions containing normal salt solution.

The active principle is in white crystalline form and its general chemical behavior is that of a basic substance. It is sparingly soluble in water—1 part in about 600 parts of water. It dissolves readily in dilute acids, forming various salts. Its solutions exhibit all the characteristic chemical and physiological reactions of the active principle of the gland.

A drop of the 1/10000 solution introduced into the eye will blanch the lids within from thirty seconds to one minute. Bloodless operations have been performed with this dilute solution.

The 1/1000 solution may be used by the mouth as a heart tonic. A small quantity of it has proved sufficient to stimulate the pulse during surgical operations under chloroform.

We should very much like to have you make clinical tests of the specimens sent you with a view to gauging the power of the adrenalin as a hemostatic, as an astringent, or as a heart tonic, and if you will kindly communicate the results of your observations we shall be very much indebted to you.

We trust that we have not presumed on your interest in the powerful and useful substance, and we beg leave to thank you in advance for such attention as you may give the solutions sent you.

Very respectfully yours,

PARKE, DAVIS &amp; CO.



Ever since Bates (1897), Abel and Crawford, and Mullen (1898), and others had drawn the attention of oculists and aurists to the local effects of the extract of the suprarenal capsule, like many others, I have experimented with it in my practice. About a year ago, through the kindness of Messrs. Armour & Co., of Chicago, I received a large quantity of the desiccated suprarenal capsule manufactured by this firm, which I have also used. When, in the July (1900) number of the *AMERICAN JOURNAL OF OPHTHALMOLOGY*, Dr. L. Howe\* described his method of preparing a solution which, contrary to all other methods, was to render the solution useful for from two to three weeks, I tried this also. Yet, while it was a decided advance, it was not quite as satisfactory as I had expected. All of these solutions and extracts became foul in a very short time and disgusting, if not useless.

The samples of adrenalin, which I have obtained through the kindness of Messrs. Parke, Davis & Co., are immensely superior in this respect, that in the two and a half months in which I have used them the solutions have not become foul. While each bottle contains now some fungous growths and the action of the solutions does not appear to be as strong and immediate as in the beginning, yet they cannot be called foul and spoiled.

In so far the adrenalin, as prepared by this firm, is certainly extremely useful and highly to be recommended. The action on the mucous membranes is prompt and efficient. Yet, it seems to me the value of this remedy has been in general somewhat overrated. It has certainly no quality as a remedial agent, as I have proven to my satisfaction time and again in all forms of inflammatory conditions in the eyelids and eyeball, and also in the ear. Its effect is evanescent, and while it may help to increase the action of cocaine, and perhaps prolong it, the cases in which its employment may be considered as useful are comparatively few. It is especially in eye and nose surgery that it may retain a place.

I have had no occasion to try it as a heart tonic.

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\*Note on the Preservation of Aqueous Solution of the Extract of Suprarenal Capsule.—L. HOWE.

## CORRESPONDENCE.

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### THE PAN-AMERICAN CONGRESS HELD AT HAVANA, CUBA, IN FEBRUARY, 1901.

BURLINGTON, IOWA, February 27, 1901.

Editor AMERICAN JOURNAL OF OPHTHALMOLOGY:

The enclosed memoranda may give you some idea—not very clear perhaps—of the doings at the Pan-American Congress. Necessarily much of it is drawn from memory. Had I known beforehand that there would be so few of us to tell what we saw and heard, or that I should be asked for an account, I would have prepared myself to make a systematic and complete report. But such as it is, it is freely at your service,

Truly yours, H. B. YOUNG, M.D.

The attendance of eye, ear, nose and throat men at the Pan-American Medical Congress, lately in session at Havana, was not sufficiently large to warrant the organization of two sections as originally intended; and the time was therefore divided between them in one section, which assumed both titles. Ophthalmological papers were offered as follows:

1. "Statistics of Cataract in the Antilles Compared with Those on the Island of Majorca." Dr. J. Ramonell, Havana.
2. "A New Clinometer for Measuring the Torsional Deviations of the Eyes and Estimating the Degree of Distortion Produced by Cylindrical Lenses." Dr. Alex. A. Duane, New York.
3. "Report of a Case of Removal of the Superior Cervical Ganglion for Non-Inflammatory Glaucoma." Dr. Joseph Mullen, Houston, Texas.
4. "Case of Blindness from Sympathetic Ophthalmitis Complicated with Secondary Glaucoma; Restoration of Vision by Two Iridectomies; One with Extraction of Lens, Iridocystectomy, and Tynell's Operation of Drilling." Dr. Chas. A. Oliver, Philadelphia, Pa.
5. "Ocular Disorders in Lepers." Dr. Joaquim Patron Espada, Yucatan.



6. "Iridectomy After Simple Extraction of Cataract." Dr. Juan Santos Fernandez, Havana.

7. "Alcohol and Tobacco Amblyopia in Cuba." Dr. C. E. Finlay, Havana.

8. "Sterilization of Cataract Knives." Dr. Juan Santos Fernandez, Havana.

9. "Retinal Asthenopia of Spongers." (Idem.)

10. "Etiology of Ulcus Rodens Corneæ." Dr. Eduardo Andrade, Venezuela.

11. "Arterio-Venous Aneurysm by Rupture of the Internal Carotid Into the Cavernous Sinus." Dr. Louis H. Debayle, Leon, Nicarragua.

Of the North American contributors only one was present, namely, Dr. Mullen. The case he reported was classed as a failure; for after the lapse of a few months all the symptoms of glaucoma were manifest as before.

Dr. Fernandez (6) believes that a small iridectomy after extraction reduces the chances for prolapse and synechiæ. That is his experience.

Dr. Finlay (7) demonstrated by a number of cases—92 among 4300 patients—that alcohol and tobacco amblyopia was not so rare in Cuba as former writers have reported. Cuban tobacco, although mild as a rule, and Spanish wine, although rarely taken to the point of intoxication, are not, therefore, harmless to vision.

Dr. Andrade (10) found through a number of cultures from several rodent ulcers that different ulcers showed different micro-organisms. He relied mainly on iodoform locally.

Dr. Debayle (11) gave a complete report of a case which he had under observation from the first disturbance (exophthalmos) to the fatal termination. Accompanying his report were numerous beautiful photographs showing the progress, the gross appearances at the autopsy, and structural changes as seen through the microscope. The patient was a woman of thirty-five years. Trauma (?), syphilis, and arterio-sclerosis were excluded, and a malarial origin was suggested.

Most of the papers elicited lively discussion. In fact the discussions in some instances were so lively among the Spanish-Americans that the "enervating influences of a tropical climate" became a doubtful quantity. Enthusiasm and fluency

of speech our Southern neighbors excel in; but they can profitably take from us a few lessons in system and speaking strictly to the issue.

All in all, however, in spite of the small attendance, the section meetings were pleasant and profitable. To those speaking English only, the mysteries of Spanish speech were made clear by Drs. Finlay and Andrade, who were indefatigable in translating.

Ophthalmologists in attendance from the United States: Carvelle, Manchester, N. H.; McDavitt, St. Paul, Minn.; Mullen, Houston, Texas; Young, Burlington, Iowa.

Ophthalmology was especially honored, however, in the selection of one of its leading exponents, in Havana, Dr. Fernandez, as President of the Congress.

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PRIZE ESSAY OF THE MEDICAL SOCIETY OF THE STATE OF  
NEW YORK.

At the ninety-fifth annual meeting of the Medical Society of the State of New York, held in Albany, January 29-31, Dr. Jacobi, of New York, Chairman of the Committee on Prize Essays, reported that the best essay submitted was written by Dr. Lucien Howe, of Buffalo. The essay was entitled "On the Measurement of the Inter-Ocular Base Line and the Size of the Meter Angle." The prize is \$100. We congratulate.



# MEDICAL SOCIETIES.

## PRELIMINARY PROGRAM OF THE MEETING OF THE WESTERN OPHTHALMOLOGIC AND OTO- LARYNGOLOGIC ASSOCIATION.

*To be held at Cincinnati, Ohio, April 11-12, 1901.*

### OFFICERS AND STANDING COMMITTEES—1900-1901.

M. A. Goldstein, M.D., President, St. Louis, Mo.; H. V. Würdemann, M.D., First Vice-President, Milwaukee, Wis.; Fayette C. Ewing, M.D., Second Vice-President, St. Louis, Mo.; C. R. Holmes, M.D., Third Vice-President, Cincinnati, Ohio; W. L. Dayton, M.D., Treasurer, Lincoln, Neb.; William Lincoln Ballenger, M.D., Secretary, Chicago, Ill.

*Program Committee.*—Wm. L. Ballenger, M.D., Chairman; H. V. Würdemann, M.D., Edwin Pynchon, M.D.

*Publication Committee.*—A. Alt, M.D., Chairman; Wm. Scheppegrell, M.D., Fayette C. Ewing, M.D.

*Membership Committee.*—H. W. Loeb, M.D., Chairman; B. E. Fryer, M.D., W. L. Bullard, M.D.

*Arrangement Committee.*—C. R. Holmes, M.D., Chairman; J. W. Murphy, M.D., Derrick T. Vail, M.D., H. Stow Garlick.

### PROGRAM.

*Thursday, April 11, Morning Session (General), 10 A.M.*

Call to order by the Chairman of the Committee of Arrangements, C. R. Holmes, M.D.

Remarks by the President, M. A. Goldstein, M.D.

Announcements by the Committee of Arrangements.

• Roll call.

Reports of Officers and Committees.

### PAPERS.

1. Hemophilia in Relation to the Surgery of the Ear, Nose and Throat. W. Scheppegrell, M.D., New Orleans, La.

2. Optic Neuritis Resulting from Intra-Nasal Diseases. Derrick T. Vail, M.D., Cincinnati, Ohio.

3. Paralysis of Accommodation Following Diphtheria. J. H. Johnson, M.D., Kansas City, Mo.

*Thursday, April 11, Afternoon Session, 2:30 P.M.*

OTO-LARYNGOLOGIC SECTION.

1. A Means of Reducing an Overgrowth of the Inter-Maxillary Frenum, Permitting the Retention of Two Central Incisors in Close Apposition. H.W. Loeb, M.D., St. Louis, Mo.
2. Adenoids; Complications and Sequelæ. H. Stow Garklick, M.D., Cincinnati, Ohio.
3. Subject to be announced. Edwin Pynchon, M.D., Chicago, Ill.
4. A New Technique for the Reduction of Turbinal Hypertrophies. M. A. Goldstein, M.D., St. Louis, Mo.
5. Treatment of Some Purulent Conditions of the Antrum of Highmore Through the Natural Opening. Norval H. Pierce, M.D., Chicago, Ill.
6. Some of the Bacteria Found in the Nose, and Their Relation to Disease. Samuel Iglaur, M.D., Cincinnati, Ohio.

OPHTHALMOLOGIC SECTION.

1. Therapeutic Value of Adrenalin. Dudley S. Reynolds, M.D., Louisville, Ky. Discussion opened by W. L. Dayton, M.D., Lincoln, Neb.
2. The Value of Methyl Blue as a Local Application. M. F. Coomes, M.D., Kansas City, Mo.
3. Affections of the Lacrymal Apparatus. Flavell B. Tiffany, M.D., Kansas City, Mo.
4. Obstruction of the Lacrymal Duct and Its Treatment. John J. Kyle, M.D., Indianapolis, Ind.
5. Can the Conjunctival Sac be Rendered Aseptic with Safety to the Eye? B. E. Fryer, M.D., Kansas City, Mo.
6. Drainage of the Eye as a Basis of Treatment. Frances Dickinson, M.D., Chicago, Ill.
7. Dacryostenosis with Abscess. J. F. Reynolds, M.D., Mt. Sterling, Ky.

*Friday, April 12, Morning Session, 10 A.M.*

OTO-LARYNGOLOGIC SECTION.

1. Spongifying of the Bony Capsule—Especially the Differential Diagnosis from Total Disease. J. Hollinger, M.D.,



Chicago, Ill. Discussion: *a.* C. R. Holmes, M.D.; *b.* O. J. Stein, M.D.

2. Auscultation of the Mastoid. A. H. Andrews, M.D., Chicago, Ill. Discussion: Wm. L. Ballenger, M.D.

3. The Stapedius is a Muscle of Accommodation. Thos. F. Rumbold, M.D., St. Louis, Mo. Discussion: Noval H. Pierce, M.D.

4. A Case of Otic Cerebellar Abscess, Sinus Thrombosis, and Commencing Cervical Abscess; Recovery. C. Barek, M.D., St. Louis, Mo.

5. Some Points in Operating for Mastoiditis. Geo. F. Keiper, M.D., Lafayette, Ind.

#### OPHTHALMOLOGIC SECTION.

1. The Relation of Chalazia, Internal Stytes, and Tarsoadenitis. N. F. Weyman, M.D., St. Joseph, Mo.

2. Hysterical Disorders of the Eye. F. A. Phillips, M.D., Chicago, Ill.

3. Blennorrhœa Neonatorum. Adolf Alt, M.D., St. Louis, Mo.

4. A Contribution to Our Knowledge of Cortical Blindness. C. Barek, M.D., St. Louis, Mo.

5. Calcarious Infiltration of the Cornea. Oscar Dodd, M.D., Chicago, Ill. Discussion opened by S. C. Ayres, M.D.

6. Wounds of the Ciliary Body and Their Treatment. J. S. Mott, M.D., Kansas City, Mo.

*Friday, April 12, Afternoon Session (General), 2:30 P.M.*

#### JOINT SESSION.

1. Report of a Case of Vicarious Menstruation of the Retina. J. G. Huizinga, M.D., Chicago, Ill.

2. Atrophic Laryngitis. B. Tauber, M.D., Cincinnati, Ohio.

3. The Cause and Treatment of Laryngeal Edema. Hal Foster, M.D., Kansas City, Mo.

#### EXECUTIVE SESSION.

Report of Committee on Membership.

Election of New Members.

Report of Nominating Committee.

Election of Officers, 1901-1902.

Adjournment.

ANATOMO-PATHOLOGIC MUSEUM.

The museum will be in charge of Dr. John W. Murphy, The Groton, Cincinnati.

Members are requested to send or bring interesting anatomical, histological and pathological specimens, with a written (preferably typewritten) description of the same. A microscope will be provided for the examination of slides. New instruments may also be exhibited. A catalogue of the exhibit will be printed in the report of the annual proceedings so that the written description of specimens will be permanently preserved for future reference. Members are urgently requested to either send or bring specimens for this exhibit and are assured that every effort will be made to preserve them from damage. Interesting drawings and photographs may also be exhibited.

Dr. C. R. Holmes and Dr. J. W. Murphy will exhibit sections of the head.

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OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.\*

*Thursday, January 31, 1901.*

G. ANDERSON CRITCHETT, M.A., M.R.C.F.E., President,  
in the Chair.

PARESIS OF DIVERGENCE.

DR. G. A. BERRY read a paper on so-called paresis of divergence. He cited cases and showed diagrams in support of his theory that the cause was really overaction of convergence rather than paresis of divergence. In cases when there was doubt whether strabismus fixus was present or not, the diagnosis was much facilitated by taking hold of the eye with a pair of fixation forceps and forcibly rotating the globe outwards. If this could be done it was clearly not a case of strabismus fixus, while if it were impossible, then it proved that it was a true case. He also read notes on some rare forms of non-paretic, non-concomitant squint in which, through faulty innervation, muscles not usually associated worked together,

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\* British Medical Journal.



such as the internal rectus of one eye with the superior rectus of the other.

#### ECLIPSE BLINDNESS.

DR. RAYNER D. BATTEN reported a case of eclipse blindness with thrombosis of a retinal artery and hæmorrhage into the vitreous.

The patient was a woman, aged 28, who watched the eclipse of the sun on May 28, 1900, without any protection than that offered by screwing up the eyes and looking between her fingers held close together. Immediately afterwards she noticed that things looked black, and the next morning she found she could only see "portions of things." She was first seen on June 6th, and was found to have lost the lower half of the field of vision in the left eye. The vision was  $\frac{6}{18}$ . Above the optic disc a white patch was seen, possibly an absorbing hæmorrhage, while the hazy and œdematous retina obscured the view of the disc and retinal vessels. The œdema increased until June 20th and then rapidly cleared, ultimately leaving a patch of choroido-retinitis above the disc. One of the upper retinal arteries was occluded and the others were reduced in size. The vitreous opacities cleared and the macula was unaffected. The vision improved to  $\frac{6}{12}$  in the injured eye. In the right it was  $\frac{6}{6}$ . The patient was in good health, and no other cause could be found for the injury except exposure to direct sunlight.

MR. J. B. LAWFORD had observed three cases of eclipse blindness, but there were no ophthalmoscopic changes. In all, however, the scotoma had persisted with some deterioration of vision.

MR. TREACHER COLLINS related two cases. In one the discs became very pale, and there was a central scotoma. In the other the vision improved, but the fields were greatly contracted for white, and those for colors were very much smaller.

MR. JESSUP had published three cases. In all the vision improved, though there was a slight permanent scotoma.

MR. BOKENHAM gave details of two cases, in one of which there were retinal hæmorrhages. The vision improved from  $\frac{6}{60}$  to  $\frac{6}{12}$ , but there was a marked central scotoma.

DR. BERRY thought the scotomata were usually permanent.

The general public was not sufficiently aware that blue glasses were worse than useless when looking at the sun and at bright lights. It was the blue and violet rays which did all the damage.

MR. JOHNSON TAYLOR, considering the marked way in which Mr. Batten's case differed from eclipse blindness, asked if there was at any time keratitis punctata, as he thought the whole condition might be due to irido-cyclitis.

DR. BATTEN, in reply, stated that no keratitis had been seen, and he could find no cause for this condition other than that given.

A CASE OF BULLET INJURY OF THE OCCIPITAL LOBES, WITH  
LOSS OF THE LOWER HALF OF EACH VISUAL FIELD.

THE PRESIDENT read this paper. The patient, a captain in the British army, was struck by a bullet (probably Lee-Metford) while turning to address his men on the left. The pain was likened to that caused by a blow from a racquet ball. He lost his sight at once, but did not become unconscious for half an hour. He remained comatose for eight days, and on recovering consciousness was still blind, but a week later was able to distinguish the flash of a lighted match. He was trephined on the day following the injury, he believed, at both the point of entry and exit of the bullet. The trephine aperture at the site of entry, marked by a distinct depression, was situated two and a quarter inches above Reid's base line on the right side in a vertical line above the posterior border of the mastoid process, and one and one-half inch below and slightly behind the parietal eminence, four inches from the external occipital protuberance. The aperture of exit was half an inch to the left of the middle line, two inches above the protuberance, and one inch below the lambda. When examined, the pupils were active directly and consensually, the fundi were normal, and the vision in each eye was  $\frac{6}{6}$  and Jaeger I. The patient had been prevented entering the navy by color-blindness. The lower half of each visual field was lost almost completely, the line of limitation being irregular.

This feature was the chief point of interest, as it afforded evidence of interference with the cortical visual centers. The bullet must have traversed the skull horizontally from before backwards and from right to left, and brain substance had



been recognized at the time of injury. The course of the bullet must have been through the anterior part of the right middle occipital convolution, injuring also the right and left cuneus. The sudden impact probably caused temporary paralysis of the visual centers from concussion. That there was a considerable extravasation of blood was proved by the rapid onset of unconsciousness, and this or the actual injury caused by the bullet might account for the persistent failure of the lower half of the visual fields, though on the latter supposition it was difficult to explain the exact symmetry of the visual loss. In a recent number of the *Lancet* Mr. Page had published a case of injury to the right occipital region attended with homonymous hemianopsia on the left side, complete at first but subsequently recovering. No optic neuritis could be detected in either of these cases.

MR. FISHER gave details of two cases of similar character to that cited, the lower half of the fields being lost—altitudinal hemianopsia.

#### CARD SPECIMENS.

The following were shown: Mr. W. H. Jessop: Case of Tuberculosis of the Conjunctiva.—Dr. W. A. Stirling: Primary Sarcoma of This Orbit.—Mr. W. Lang: New Growth on Ocular Conjunctiva, Probably a Papilloma.—Mr. J. B. Lawford: Concussion Injury of the Eyeball, with a “Hole” at the Macula.—Mr. W. T. Lister: Spreading Opacity of the Cornea Following Herpes Ophthalmicus.—Mr. W. H. Jessop: Case of Probable Distension of the Frontal Sinus in a girl, aged 10 years. Other cases in children were mentioned by Messrs. Poulett Wells, Tatham Thompson, Berry, and Little.—Mr. W. C. Rockliffe: Sections of a Conjunctival Growth. The nature of this being doubtful, it was proposed to refer it to a committee.

## ABSTRACTS FROM MEDICAL LITERATURE.

BY W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### CERVICAL SYMPATHECTOMY IN THE TREATMENT OF CHRONIC GLAUCOMA.

Angellucci (*Rif. Med.*, September 15, 1900) records two cases of chronic glaucoma where iridectomy could not be done, and where excision of the left cervical sympathetic was practiced as an alternative. In each case good results followed. The vision, which was  $\frac{6}{60}$  before operation, became  $\frac{6}{12}$  afterwards; the vitreous cleared and the tension was reduced from + 1 to normal. In the second case vision improved from  $\frac{6}{24}$  to  $\frac{6}{6}$ . In the first case after operation sensation of heat at the top of the head and vertiginous attacks became troublesome at times. In the second some difficulty was experienced in raising the corresponding arm, and certain effects of vascular dilatation, which had been troublesome before the operation, became worse afterward; also a fairly marked degree of hemeralopia set in. The local eye conditions were, however, considerably improved. Sympathectomy, the author thinks, is not suitable for acute and subacute cases, but may be tried in chronic cases where for some reason the more ordinary treatment fails or is inapplicable.

### AN OPERATION FOR THE RELIEF OF STOPPAGE OF THE TEAR PASSAGE, ABSCESS OF THE SAC, ETC.

Erasmus A. Pond (*New York Medical Record*, February 2, 1901) describes a method for the free drainage of the lacrymal sac, relieving epiphora and obviating any dangerous abscess, in one operation. A long silver probe, with one end blunt and the other with an eyelet large enough to carry a coarse silk string, is threaded and passed through the canal into the nose when the end is seized with a pair of forceps and drawn out through the nostrils. The probe is then removed and the string left in position with the ends tied together. The string is worn about one week, being drawn through the nose two or three times daily. In tying he



makes quite a knot which, when pulled through the canal, enlarges the opening. The canaliculus may be slit or not as deemed advisable. Most of the operations have been done under cocaine, but in some he has used ether. There is no pain after the first operation. In abscess of the sac the string gives good drainage. The author has made use of this method for four years with good results.

Three cases are reported which were severe and of long duration, but were promptly and permanently relieved.

THE EFFECT OF CONVERGING PRISMS ON OUR NOTIONS OF SIZE AND DISTANCE: AN EXPERIMENTAL STUDY.

Alexander Duane (*New York Ophthalmic Record*, December, 1900), after giving 28 cases by way of illustration, draws the following conclusions:

From these experiments the following deductions may be made:

1. In the great majority of cases (23 out of 28) the effect of a converging prism was to make a distant object appear either smaller or more remote. In 17 of these it was both smaller and more remote; in two (Cases 2 and 11) it appeared smaller, but not more remote; in four (Nos. 4, 5, 14 and 19) it appeared more remote, but not smaller. Of these four last-named cases, however, it must be noted that two were only examined when under homatropin.

2. Both the apparent recession and the apparent diminution increased *pari passu* with the amount of convergence employed.

3. In some cases (Nos. 6, 12 and 15) the apparent recession of the distant object seemed to be the primary effect produced by converging prisms, since this recession was noticeable even with a prism that was too weak to cause any diminution in the apparent size of the object and since also with all prisms it was more marked than the diminution. In other cases the diminution in size seemed to be the primary effect.

4. In but a single instance (and that a very uncertain one) was the distant object alleged to look nearer.

5. In no instance was it alleged to look larger. An apparent exception to this was found in several cases in which a near object that looked very small through the prism looked so much larger, comparatively speaking, when it was carried

further away, and that it was thought to be actually larger than natural. But when the prism was taken off it was seen at once that the distant object had not really looked larger with the prism than it did without it; on the contrary, in most cases it looked smaller.

6. In the few cases (Nos. 13, 20, 27, 28) in which no effect was produced upon the apparent size or distance of an object across the room the amount of convergence employed was usually small, and the analogy of other cases would lead us to suppose that with stronger prisms a decided effect would be produced both upon the size and distance.

7. The effect upon the apparent size and distance of objects seen through converging prisms was less pronounced in those who from the start used but little accommodation in converging. On the other hand, it seemed particularly marked in those whose sight, at first blurred by the excessive accommodation employed, cleared up afterward through relaxation of the accommodation. Objects, as soon as they became distinct through this relaxation of the accommodation, appeared small and far off.

8. The addition of a concave glass, clearing up the sight that was blurred by the overplus of accommodation used, had no effect upon the appearance of diminution and recession produced by prisms.

9. The effect of homatropin pushed to the point of complex relaxation of the accommodation was in some cases (Nos. 5, 10, 14, 25) to make the object appear further off, but no smaller. In one case (No. 11) it prevented both the recession and the diminution that had existed before. In this case, however, the findings were rather uncertain. In cases 16 and 18 the diminution in size and the recession were marked both with homatropin and without.

10. In 14 cases out of 16 examined the effect of looking through converging prisms at an *object near by* (18 to 30 inches) was to make it appear *smaller*. This diminution in size was generally very marked, even with weak prisms—much more marked, indeed, than for distance. In one case (No. 6) a near object looked remote, but apparently no smaller, and in one (No. 11) it would seem there was no change either in size or distance.



11. *Near objects* generally looked *more remote*, although sometimes they looked nearer than they really were. With strong prisms the recession may be very pronounced.

12. In all out of six cases examined under *homatropin*, a *near object* looked either further off or smaller or both further and smaller. The effect was usually a decided one.

The *explanation* of these phenomena is still somewhat difficult, although the experiments as above described strongly indicate that the accommodation, or rather, as I originally stated, relaxation of an unnaturally tense accommodation, is the prominent factor in their production. I am inclined to think that it is the disturbance of the normal relations between accommodation and convergence, brought about by the use of converging prisms, that is chiefly responsible for the diminution in size that most people observe in an object seen through a prism of this sort. The recession that is also generally noticed seems partly due to the same cause, but is considerably influenced by the effects of contrast and perspective. The psychological element, too, must not be ignored. Many people tell us what they think they ought to see rather than what they really do see, and even those who try to give an accurate description sometimes pervert their actual impressions, since they correct by mental effort what they know to be an illusion.

#### THE VALUE OF ENUCLEATION.

The relative value of enucleation, as compared with the various operations by which it can be replaced, was thoroughly discussed at the International Medical Congress which met at Paris. Prof. Pflüger, of Berne, thinks enucleation has the advantage of being a simple operation, capable of rapid execution, but it has the disadvantage of leaving a small stump, which allows of but little movement in an artificial eye. Dr. Mules eviscerates the contents of the globe and inserts an aseptic glass or metallic ball, uniting the edges of the sclerotic, and rendering the wound subcutaneous by drawing the conjunctiva over it. Mr. W. A. Frost and Mr. W. Lang propose to enclose the glass ball in the capsule of Tenon, whilst Dr. Schmidt recommends attaching the recti muscles to the conjunctiva. Dr. H. R. Swanzy, of Dublin, practices Mules's operation in all cases of enucleation, excepting those of ma-

lignant tumor, or cases where sympathetic trouble is to be feared. M. de La Personne prefers the actual cautery, as recommended by M. Panas, in which a large thermo-cautery at a white heat is applied to the interior of the globe. The *débris* of the membranes are removed, and the wound is cleansed with cyanide or bichloride of mercury solution. No bleeding occurs. No sutures are needed, and pain is abolished.

Lethal meningitis has been observed in cases of enucleation of the eye affected with acute inflammation and suppuration, but it has also been seen in similar cases when no operation was performed. None of these proceedings is a complete safeguard against the occurrence of sympathetic ophthalmia, nor does neurectomy constitute a complete and permanent protection against it.

#### CYSTICERCUS IN THE EYE.

Gallemaerts (*La Polyclinique*, January 15, 1901) states that in certain cases it could be determined how long the cysticercus remained living in the eye; the longest period was seven years. The diagnosis is difficult in the beginning. The presence of the cysticercus is positively demonstrated only by the presence of movements. De Vincentiis has proposed to excite these movements, so as to render them more apparent, by applying a faradic current to the temple. As soon as the diagnosis is made, its extraction must be proposed, this being the only way to preserve the eye and vision. If the operation be performed early, the vision will be in great part preserved. As a prophylactic measure, meats should be more carefully inspected.

#### LACRYMAL OBSTRUCTION.

In the discussion of a paper read at the Ipswich Meeting of the British Medical Association, it appeared that there was not any very general consensus of opinion in regard to the treatment to be adopted in lacrymal obstruction, even in the simple forms of the disease, and, consequently, much less so in the severe forms—some using small and others large probes; some slitting the canaliculus, and inserting straight silver or gold styles. Others moulding flexible lead ones to the form of the duct, and copying the form in gold. One



speaker used a rose-headed drill or burr, worked by the ordinary dental engine; another was content with syringing at first, and slitting the canaliculus if this plan did not relieve, or even laying open the sac, and either removing it or applying the actual cautery.

Mr. George Berry said that, as a rule, there was a tendency to do too much; a conclusion that most of us who have seen many cases will be inclined to agree with. Mr. Donald Gunn spoke of the frequency of lacrymal obstruction in infants, and believes it to be associated with congenital obstruction at the lower end of the nasal duct.

REMOVAL OF FOREIGN BODIES FROM THE EYEBALL —  
REPORT OF EIGHTEEN CASES.

Chas. Lukens (*Annals of Ophthalmology*, July, 1900) reports eighteen cases in detail, and draws the following conclusions:

1. The lens is the most tolerant tissue to a foreign body.
2. The phagocytic power in healthy eyes is very strong.
3. All foreign bodies should be removed as quickly as possible, especially if they are near any of the fixed tissues of the eye, as they are apt to become encysted and apparently innocuous for irregular periods of time, and thus missed and allowed to remain until they at some future time, by reason of traumatism or atrophying processes, are again set loose and excite most disastrous influences upon the organ itself, or even upon its fellow.
4. The wound of entry should be utilized wherever possible.
5. Skiagraphs are often indispensable.
6. After skiagraphic study, should the mass prove to be steel or iron, the magnet can be safely employed, followed in some cases by the use of forceps.
7. The attempt should always be made with forceps in cases of particles of other metals.
8. Copper or stone particles are the most serious.
9. Wounds posterior to the ciliary region, even if much larger, are less serious than wounds anterior to it.

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## ORIGINAL ARTICLES.

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### BLENNORRHOEA NEONATORUM.\*

BY ADOLF ALT, M.D.

WHAT an enormous amount of good has been accomplished by the method of *prophylaxis* against the disease called blennorrhœa neonatorum, which was introduced by Credé in 1881, you all know and need not be reminded of. He is, in my opinion, one of the great benefactors of mankind.

It is a great pity that here, out in the West, his method is certainly not practiced, nor, for that matter, any method of prophylaxis, as frequently and as thoroughly as it should be. Still, its influence is felt in the fact that cases of blennorrhœa neonatorum have of late grown decidedly less frequent. Yet not all that can be done in this direction is being done. A number of the States of our Union have enacted laws—and some quite stringent ones—concerning blennorrhœa neonatorum, with the hope of thereby exerting a beneficial influence. But thus far they seem to have accomplished but little, and they are probably as inert as many another good law, because nobody carries it out. It is not likely, in my opinion, that such laws will avail much in connection with the disease under consideration until both physician and public are educated up

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\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.



to them, until they know the causes of the disease, the possibility and almost certainty of its prevention by the proper methods of prophylaxis, and, finally, how to deal with the cases when these measures have been neglectfully omitted, and I may add to this, until both physician and public are thoroughly imbued with the fact that an eye lost by blennorrhœa neonatorum is a damning reflection on one or both of them.

In the following I do not intend to carry coals to Newcastle and to deliver before this assembly a lecture on blennorrhœa of the newly born. I only want to draw your attention to some of the facts concerning this disease, which have been elucidated in the last quarter of the past century, and which, it seems to me, are of very great practical value.

It is not new to you that the term "blennorrhœa neonatorum," like many names in our medical terminology, includes more than one form of disease; in fact is applied without any distinction to certain diseases of the conjunctiva appearing in the newly born and which, as we at present understand it, may be due to widely different causes. The name simply applies to a symptom—the running of a purulent discharge—which, though a very prominent and characteristic feature in these affections, gives no clue whatever as to the real origin in the individual case. Twenty-five years ago no doubt entered the mind of most oculists with regard to the origin of this affection. Gonorrhœa, and gonorrhœa alone, of one or both parents, was considered to be infallibly its cause.

We now know better, and we may well feel ashamed at many a mental wrong we did in our ignorance.

This improved knowledge is due to systematic bacteriological examinations. Such have been made in cases of blennorrhœa neonatorum and reported by a number of observers, like Haab, Kroner, Axenfeld, Schmidt-Rimpler, and others.

At the meeting of this Association, held at St. Louis, in 1897, Dr. F. T. Reyling reported a series of bacteriological examinations made by him in fourteen cases of blennorrhœa neonatorum. He found the gonococcus of Neisser in only nine of these cases; in four it was absent. For years I have made bacteriological examinations of the pus in every case of blennorrhœa neonatorum which I saw in my private practice. I have records of seventeen cases. In nine of these I found the

gonococcus of Neisser, in four cases the diplococcus lanceolatus of Fraenkel, in one case a short bacillus which was probably the bacterium coli, in the remaining three cases only some staphylococcus.

Most recently (in *Graefe's Archives*, Vol. LII., Part I.) Groenouw, of Breslau, reports a series of one hundred cases of blennorrhœa neonatorum which he examined bacteriologically, having previously in another paper reported forty of the cases. This is probably the largest number any one man has had occasion to so examine. He found the gonococcus of Neisser in forty-one cases only; in five cases the diplococcus lanceolatus of Fraenkel; the streptococcus pyogenes in two cases; the staphylococcus pyogenes aureus in four cases; the micrococcus luteus in one case, and the bacterium coli in seven cases. In about one-third of Groenouw's cases no specially typical pyogenic bacteria were found.

By adding Reyling's and my small series to Groenouw's, we find that in only sixty-one cases out of one hundred and thirty-one of blennorrhœa neonatorum, the gonococcus of Neisser was found, which is in less than half of the total number.

In all of these cases the differential diagnosis had been made by means of Gram's method, which, as you know, decolorizes the true gonococcus.

The results of these examinations show what we should never forget—that it is our duty to always examine the discharge from the conjunctival sac, not only in blennorrhœa neonatorum, but in all conjunctival and corneal affections, at least if we want to be scientific physicians and want to adapt our therapeutic measures to the individual case, as we always should.

From these considerations we can no longer consider it scientific treatment if we—as most text-books will still have it—simply apply a one or two per cent. solution of nitrate of silver in every case in which there is a purulent discharge from the conjunctiva.

We now know that the severe cases of blennorrhœa neonatorum—those that cause very violent symptoms, endanger the cornea and do not yield very rapidly to treatment—are usually due to the gonococcus of Neisser. The lighter forms, which



yield more readily to treatment, are usually due to some other microbe. Although there are exceptions to this, as a general rule I think it holds good.

Let us see now in what way these considerations will, and necessarily must, influence our measures, both of prophylaxis and treatment.

While the now classical prophylactic application of a drop of a two per cent. solution of nitrate of silver to the conjunctiva of the newly born, as introduced by Credé, has done an immense amount of good, is it always necessary, or perhaps at all necessary, to use so strong a solution? I suppose all of you have—I certainly have—seen cases in which a few days after the application of the Credé method an infant had a decidedly purulent discharge from the conjunctival sac. There was perhaps little cedema of the lids and the discharge was not very profuse, yet the picture presented was that of a milder type of blennorrhœa neonatorum. If in such a case no bacteriological examination is made and the treatment with nitrate of silver kept up, a blennorrhœa due only to the chemical and traumatic influence of this salt will simply be perpetuated. I have in some such cases found no pyogenic microbes at all, and especially no gonococcus, and they got well rapidly on discontinuing the nitrate of silver treatment and substituting for it a mild antiseptic eye-wash, besides cold applications.

I have no doubt that such cases have been observed wherever Credé's method is regularly applied. They are not very frequent and no particular harm is produced, yet they seem to speak against the promiscuous use of the classical two per cent. solution of nitrate of silver—not, as I want to be distinctly understood, against the method of prophylaxis. The question only remains, whether we must insist on the application of so strong a solution.

In a paper published by Dr. Lucien Howe in the March (1898) number of the *AMERICAN JOURNAL OF OPHTHALMOLOGY*, in which he advocates the enforcement by law of Credé's method in public institutions, this author says: "It is true that a remedy *better* than silver nitrate may be discovered at any time, but if this happened the law could easily be changed." This evidently shows a certain degree of dis-

satisfaction with the routine application of Credé's method, although among 24,000 cases of the application of this method, collected by him, disagreeable results seem to have followed in only four doubtful ones.

If I understand the theory of the action of a one or two per cent. solution of nitrate of silver in the treatment of gonococcic conjunctivitis right, it destroys by its caustic action the older and superficial epithelial cells and thus brings the younger cells in which the gonococcus is usually lodged to the surface and thereby more directly under its bactericidal influence. At least we were so taught in former years, and hence the rule to apply this remedy but once in twenty-four hours; that is, when the eschar it had caused should have been cast off. If this is true, why should not solutions of remedies, which will not coagulate the albumen of the superficial layers of the epithelium, and which therefore can penetrate at once into the deeper layers and directly reach the gonococcus, prove of more immediate and, therefore, of greater value?

In an article on gonorrhœal affections of the eye (*Berlin Klin. Wochenschr.*, February 11th, 1901) Greeff mentions that in 1887 already Behring stated that in three cases of recent gonorrhœa he had succeeded in destroying the gonococcus by only three injections of a solution of nitrate of silver of only 1 in 7500 (about 1 grain to 16 ounces). Bacteriologists tell us that nitrate of silver in the proportion of 1 to 4000 kills the gonococcus. Greeff further states that a one-fourth per cent. solution of nitrate of silver is probably sufficient for all prophylactic purposes. He also argues that the stronger solutions cause a superficial coagulation, which is an obstacle to the deeper penetration of the germicide.

Yet, when applied right after birth as a prophylactic measure, there is probably never any need of a deeper penetration, since the gonococcus has as yet hardly had time to pierce the superficial layers.

The old and almost generally accepted method, as you know, was to treat any and every case of blennorrhœa neonatorum, regardless of its real origin, with the daily application of a from two to five per cent. solution of nitrate of silver. I may state that I have never used it any stronger than in a



one per cent. solution, because I have always had a suspicion that the stronger solutions helped in the production of corneal ulcers.

To be sure, we know now that the gonococcus can, when it is undisturbed, and the discharge is allowed to remain stagnant in the conjunctival sac, by its own action gain an entrance into the superficial epithelial cells and thus cause an ulceration. Yet how much easier is this when a superficial wound, so to speak, throws the doors wide open for its entrance? This may be brought about by the macerating action of stagnating pus on the superficial epithelial cells, or by superficial and even microscopical scratches on the corneal surface produced by the physician or attendant during the manipulations for cleaning the conjunctival sac or for treating the conjunctiva. It may equally well follow the application of strong solutions of nitrate of silver which, when they reach the corneal epithelium, in spite of our trying to guard against it, will coagulate the superficial cells and cause their necrosis. From this reasoning I have never used a stronger solution of nitrate of silver in these cases than a one per cent. one, and the cases in which a corneal ulcer was formed while they were under my treatment have been extremely few.

It is a common experience that the cases of blennorrhœa neonatorum differ very greatly as to their degree of virulence as well as to the time it takes to cure them. I have seen cases which took six weeks and even more of careful and watchful treatment with nitrate of silver to get well, and again I have seen cases cured in comparatively few days, say a week, with a mild antiseptic eye-wash, as for instance bichloride of mercury 1 in 10000. This difference in behavior, which we could formerly attribute only to a different degree of virulence of the gonococcus in the particular case, is now by means of our bacteriological knowledge explained in a more natural manner and better understood. As a rule the virulent cases, which yield only more or less promptly, but probably best to treatment with a silver salt, are of gonococcus origin. On the other hand, in those cases which are of a mild type and generally yield easily and speedily to a mild antiseptic treatment of some kind and cold applications, we do not find the gonococcus but some other pyogenic microbe or no known

one at all. The cases of a medium type are often due to the *diplococcus lanceolatus* or the *bacterium coli* (Groenouw).

This knowledge must necessarily influence our therapeutic measures. At least I have of late adhered to some such principle in my practice. Greeff (*loco citato*) seems still to adhere to one and the same method in all cases when he states that in his clinic at the Charité at Berlin the cases of blennorrhœa neonatorum are successfully treated by a one-tenth per cent. solution of nitrate of silver. Since I have made bacteriological examinations of the pus in blennorrhœa neonatorum I have in my treatment been governed by their results. While I have still in some cases, in which I found the gonococcus, relied on a one per cent. solution of nitrate of silver, I have of late replaced this altogether by a one, two or three per cent. solution of protargol, a remedy which I decidedly prefer, contrary reports by others notwithstanding. As we know by experiment, this preparation of silver penetrates deeper into the tissues than nitrate of silver, because it does not, like it, act as an escharotic. It is also but very little irritating and causes almost no pain—two points which I, however, grant are of little importance in the treatment of the conjunctiva of infants. However, instead of making only one application in twenty-four hours, as with nitrate of silver, I order the protargol solution to be instilled into the eye, after the removal of all pus by manipulation by the attendant, from four to eight times in twenty-four hours, besides one application of it by myself. This treatment I can conscientiously recommend, as I have seen even several gonococcus infections get well with it in the course of two weeks. Cases in which I can find no gonococcus do usually well with frequent instillations of a 1 in 10000 bichloride solution, or even a four per cent. boracic acid solution with cold compresses. When they do not quickly respond to this treatment I use a one per cent. protargol solution instead.

One of the greatest benefits of our modern improved and continually improving knowledge is that it teaches us, as physicians, better and better to individualize the cases entrusted to us and to institute our treatment accordingly. As this method of acting is the only scientific one, it is our bounden duty in all cases to adopt it, and not to continue in



the old methods which come from our fathers, who, with all their great achievements, did not have the advantages of knowledge which we have, and let us hope will continue to have, in an ever-increasing quantity for the benefit of mankind.

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## AN UNUSUAL COMPLICATION OF OPHTHALMIA NEONATORUM.

BY DON M. CAMPBELL, M.D., L.R.C.S. (EDIN.),  
DETROIT, MICH.

THE subject of this sketch, a baby of six months, came under observation with a history of having had ophthalmia neonatorum, beginning two days after birth, running the usual course for two or three weeks, and recovering under the care of the attending physician.

After the inflammatory action incident to the infection of the conjunctival sac had subsided, it was noticed that the left upper lid was completely inverted, the whole line of lashes sweeping the cornea at each movement of blinking and remaining inverted when the lid was at rest—either closed or open.

The attending physician, supposing that the deformity could be corrected by such a procedure, removed an elliptical piece of skin from the surface of the lid and drew the wound thus made together by three sutures.

This procedure was, of course, unsuccessful, and the deformity remained as before, with the added difficulty that in sleep the infant's eye did not completely close.

Upon examination the above condition was found, and upon everting the lid the cause of the defect was seen to be an adhesion between the conjunctiva, in the neighborhood of the retro-tarsal fold, with that covering the tarsal plate as far forward as the lid border. The adhesion was complete, it being impossible to pass a probe under it.

The correction of the defect was brought about by first dissecting up the conjunctival adhesion and then doing the Hotz-Anagnostakis operation for entropion and completing the procedure by placing a mucous membrane graft from the under lip of the child's father upon the raw surface left from

the dissection of the conjunctival adhesion. The complete operation was done at one sitting under chloroform anæsthesia.

Healing of the skin incision was by first intention. The mucous membrane graft adhered and grew, and the deformity was completely corrected and has remained so since, now some six months.

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## ULCUS RODENS CORNEÆ; WITH AN ACCOUNT OF A SPECIAL BACILLUS.\*

BY DR. EDUARDO ANDRADE,

Assistant to the Ophthalmic Clinic at Genoa, Italy.

*Abstracted by S. M. Burnett, M.D., Washington, D. C.*

IN this paper Dr. Andrade gives a full account—clinical and bacteriological—of one of the rarest corneal affections. So uncommon is it that many text-books do not mention it at all, and others treat it as a form of *ulcus serpens*, from which, however, it has numerous points of difference. It occurs once in about every ten thousand patients on a general average. In Genoa, among 30,000 cases it has been noted but twice. Jany, in Breslau, saw it but once in 66,000 cases. To Mooren, of Düsseldorf, belongs the honor of having first described it as a distinct disease in 1867. Hillemans, in Bonn, published a full account of all the thirty-five cases which had been reported up to date of publication of his paper in the *Arch. f. Augh.*, B. XV., October, 1899. The case of Andrade is typical. It occurred in a man of 37 years, who seemed to be in good health. The trouble began with redness, lacrymation, and pain in the right eye. The condition, when seen for the first time, was as follows: The center of the cornea was transparent, while its margin was hidden under a highly vascularized tissue, which looked as if the conjunctiva had extended over the corneal edge. The whole circumference of the cornea was implicated. The portion of the cornea lying between the band of vascularization and the transparent central tissue was occupied by a whitish ring, which represents a zone of infiltration and ulceration occupying the superficial layers of the

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\**Annali di Ottalmologia*, Vol. XXIX., 1900.



cornea. The edge towards the clear cornea is excavated, the epithelial layer hanging over the edge of the ulcer. The vascular band at the corneal margin is not the same at all parts; at the upper external portion the newly-formed tissue had a granular appearance, with here and there yellowish nodules, and the conjunctiva itself was thickened and granulating with a few nodules of a grayish-yellow color and was detached from the underlying tissue. The condition was not so pronounced at the other parts of the corneal base. At the inferior segment of the cornea, however, the newly-formed vascular tissue was devoid of epithelium. The anterior chamber appeared deeper than that of the fellow eye, because the cornea had yielded to pressure and become more convex. There was no hypopyon. The pupil under a mydriatic showed a slight adhesion of the iris to the lens-capsule. The media were clear, and the fundus, which was visible, showed no change from the normal. V. =  $\frac{1}{20}$ , Tn. The only complaint was a sense of burning and lacrymation. The sensibility of the cornea was diminished. The treatment instituted was three subconjunctival injections of sublimate solution of about 1 cc. each, eight days apart. After the first injection the margin of the ulcer was cauterized by means of the galvano-cautery. After the first injection the appearance was much improved, and after the third the process was manifestly arrested, the bottom of the ulcer cleared up, and the vascularization diminished. The complete healing left a circular, semi-transparent cicatrix. There has been no return at the end of five months.

Other observers have searched for a specific germ and have failed to find anything distinctive in the bacteriological findings. In the last issue of the *Arch. of Oph.*, March, 1901, Schmidt-Rimpler, of Goettingen, gives an account of a case which came to an enucleation and to a histological examination, and states that no bacteria could be discovered in the corneal tissue. Andrade has been more fortunate and has discovered a special bacillus, which he has isolated and cultivated. He first made a culture from a piece of tissue in glycerated agar. After twenty-four hours colonies of staphylococcus pyogenes albus had developed. After four days there was found a bacillus, which being transferred to other

media and carefully studied, showed the following characteristics: It has the form and about the size of the bacterium coli, but in the older cultures in Loeffler's serum some are found shorter but thicker. In both cultures they are observed to be united by their extremities, forming chains. Sometimes they are placed as in the diplo-bacillus of Morax and sometimes side by side without any regularity. The bacilli have great motility. The reproduction is by means of round spores which are seen at the ends of the rods, sometimes laterally near the end. The bacilli are colored by the method of Gram and other methods usually employed in bacteriology, such as those of Ziehl, Loeffler, and Roux. Blood serum prepared after the method of Loeffler is the best means of cultivating the bacillus. In from twenty-four to forty-eight hours after infection of the culture there is noticed a transparent scum which covers the surface of the serum along the track of infection, which gradually extends itself over the entire surface, assuming a corrugated appearance, while at the same time extending somewhat into the depth of the culture substance. In the meantime the serum has become softer and at the end of six or eight days is liquified with an alkaline reaction. This appears to depend upon the development of the spores. In agar-agar the development is slower and more difficult than in serum, but pursues essentially the same course. In gelatin this liquefaction is very slow and in layers. Cultures in the capsule of Petri are similar to those in agar. On the potato the culture does well, forming an almost invisible, transparent layer, as often happens with the typhoid bacillus, so that if there is not a certain amount of humidity of the surface one might doubt its presence. In simple or lactated broth it develops well without any influence on the reaction. In glucosated broth the development is less rapid, but it acidifies it. Its reaction with nitrate of soda and sulphuric acid is negative. It does not cause fermentation in glucosed or lactated media, but acidifies the glucose media. When cultivated in air deprived of its oxygen by the action of pyrogallic acid in a solution of caustic potash it develops very slowly without showing the thin layer before described. Even after fifteen days the medium remains solid. It preserves its vitality at a temperature of 75°. Inoculation of the anterior chamber of a rabbit



with a piece of the morbid tissue failed to develop any characteristic morbid process. Infection of the cornea with a serum culture both at the periphery and at the center produced at the end of 24 hours a keratitis very similar to that of the original disease in the patient. The ulceration was superficial, without any hypopyon, and healed by an advancement of the conjunctival vessels from the periphery. These experiments were repeated a number of times and always with the same result, and in two cases it was possible even after six days to get a pure culture of the bacillus from the cornea so affected. A microscopical examination of the enucleated rabbit's eye showed the existence of a microtic keratitis without any important necrotic areas. In Schmidt-Rimpler's case mentioned above the eye came to an enucleation and the result of the microscopic examination is given in three very satisfactory drawings, showing the extent of the ulceration and the infiltration of the surrounding parts with round cells. The cornea was nowhere perforated, but maintained from one-half to one-sixteenth of its normal thickness. It also showed the undermining of the ulceration at the margin next the clear cornea. There was an actual elevation of the epithelium which was at first unaccompanied by any infiltration of the corneal tissue. At the periphery the hypertrophied vascular tissue was found to be composed of a proliferation of epithelium and a great development of new blood-vessels. Andrade thinks the bacillus has a special quantitative and qualitative power, in so far as its action *in situ* does not manifest itself by a true necrosis *en masse*, but rather by a circumscribed cellular mortification, its action at a distance being expressed not by the migration of purulent leucocytes, but rather with a tendency to stimulate the production of new vessels.

In an appendix to the original paper Andrade gives an account of a case very similar clinically to the first and with the same bacillus as a cause. The inoculation experiments made in the first case were repeated and with the same results, and under the use of a solution of cyanide of mercury applied locally, together with hot applications, the disease is showing rapid improvement.

The author regards the disease, though very slow in its course, not essentially malignant, but amenable to gentle

treatment. The characteristic symptomatology of the disease, Andrade concludes, is due: (1) To the fact that the morbid process is limited to the sulcus at the corneo-scleral margin, whence its tendency to extend itself around the base of the cornea and the formation of new ulcers at the limbus. (2) The feebleness of the toxic action of the bacillus (?), whence the scantiness of the infiltration, the limitation of the ulceration to the surface of the cornea, and the tediousness of its course. (3) The difficulty of attacking directly the focus of infection which is hidden under the excavation of the inner edge of the ulcer, and the tumefaction of the tissues at the limbus. Good photographic pictures are given illustrative of the bacillus itself and the appearance of the infected culture medium.

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## EXPERIMENTAL STUDIES ON THE RECLINATION (COUCHING) OF CATARACTS.

By E. WASSILJEFF, M.D., AND N. ANDOGSKY, M.D.

From Professor Bellarminoff's Clinic at St. Petersburg.<sup>1</sup>

*Translated by Adolf Alt, M.D.*

RECLINATION of cataracts, which for many centuries had been practiced by the eye surgeons of all nations as the only method of operation for cataract, has of late been cast aside by scientific ophthalmologists, so that in most of the text-books this operation is not even mentioned.

In spite of this, this method continues in existence, and is even to-day largely practiced, of course by men who have nothing in common with science. We need only mention the Indian and Turkish operators, whom Hirschberg<sup>2</sup> and Argyll-Robertson<sup>3</sup> have written about, and the widespread employment of this method among the people of Bosnia-Herzegovina (Mader),<sup>4</sup> and its use in the middle Asiatic and trans-Kaukasian regions of Russia, in which wandering Indians and Persians perform this operation.

<sup>1</sup>Klin. Monatsbl. f. Augenh., February, 1901.

<sup>2</sup>Centralbl. f. Augenh., 1894.

<sup>3</sup>Indian instruments for couching cataract. Edinburgh Med. Jour., 1896.

<sup>4</sup>Wiener Kl. Wochenschrift, 1898.



In the literature of the last years we continually find records of the fact that even men of science occasionally have recourse to this abandoned method. Thus in 1882 Andrew<sup>5</sup> employed this method of reclinacion in a case of incomplete dislocation of the lens of traumatic origin. In 1886 Rampoldi<sup>6</sup> employed it successfully in four cases; Businelli,<sup>7</sup> too, favors reclinacion in some cases. In 1898 Valude<sup>8</sup> made a successful reclinacion in the right eye of a woman 73 years old, in whom an extraction appeared to be too risky, since the left eye had been lost from spontaneous hæmorrhage after cataract extraction. Finally, lately at the International Congress at Paris, Truc<sup>9</sup> again raised the question of the admissability of the reclinacion of cataracts in cases in which from some reason other operative method appears doubtful, as, for instance, in cases like that of Valude, when there is a tendency to hæmorrhages into the vitreous body, in idiots, alcoholics, restless persons, and finally in animals. In the discussion on Truc's paper it became apparent that Panas, Dor, and Gayet think that reclinacion has been undeservedly abandoned and may be of great service in some cases, which fact they proved by relating such cases from their practice.

The reason for the striking of the method of reclinacion from the list of the scientific methods of operation, as is well known, was the experience that this method led to more frequent complications than the other methods of cataract operations.

When we consider that, with the exception of some incomplete, gross-anatomical observations of older authors (Arlt<sup>10</sup> and Beer<sup>11</sup>), and a few of recent date (Iatropoulos<sup>12</sup>),

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<sup>5</sup>Dislocation of the lens, with remarks on the old operation of couching. *Brit. Med. Jour.*, 1882.

<sup>6</sup>E ancora indicata in qualche caso la depressione della cataratta? *Ann. d'Ophthalm.*, 1886.

<sup>7</sup>Caduta d'un nucleo di cataratta nella camera anteriore 3 anni dopo l'abassamento nel vitreo. *Jabresber. f. Ophth.* XVIII., p. 375.

<sup>8</sup>*Annales d'Oculistique.*, Jan., 1899.

<sup>9</sup>Deux cas d'abaissement de la cataracte. *La clinique ophthalm.*, 1900. No. 16-17.

<sup>10</sup>Graefe and Saemisch, v. III.-IV.

<sup>11</sup>*Lehre von d. Augenh.* Wien, 1817.

<sup>12</sup>Fungös hæmorrhagische Iridocyclitis in Folge von Depression einer cataracta senilis. *Die ophth. Klinik*, 1900, N. 12.

no exhaustive microscopical examination of the changes in eyes after reclination of cataract have been made which might have explained the causes of these complications, we may well think that what we have experimentally found and are reporting in this paper concerning this question may not only have a historical scientific interest, but from the remarks made above, even may be well-timed. This interest must be the greater, since ophthalmologists are now often in a position to observe cases in which reclination has not been made by the hand of a surgeon, but by different accidents—so-called cases of dislocation of the lens into the vitreous body, in some of which the eye is lost, while in others for some reason vision is retained and the eye is simply aphakic.

We have experimented exclusively on rabbits. We first employed the method of reclination through the sclerotic with a straight, lancet-shaped needle, but found at once an insurmountable obstacle, as with this needle no normal, clear rabbit's lens can be reclined, since at the very first attempt at pressure the needle enters the lens and, if further pressure is exerted, passes through it.

In consequence of this we constructed a special instrument in the shape of a thin ellipsoid spatula, the curvature of which corresponded with that of the rabbit's lens, with dull edges, and which was three mm. wide and about one cm. long. It had a cylindrical neck which five mm. from the spatula was bent at an almost right angle and fastened at some distance from this in a common ivory handle. If this instrument is held in such a manner that the handle is directed upwards and the spatula to the left, its convexity looks backwards and its concavity forward. In order to remove the resistance of the zonule of Zinn, the operation was performed according to a method which has been employed by many authors (Schifferli, Himly, Weinhold). With its handle directed upwards the instrument was introduced into the vitreous body through an opening in the sclerotic, which was made in the right eye a little nasally, in the left a little temporally from the cornea and a little below the respective recti muscles, then it was pushed to the posterior surface of the lens. Then it was passed over the upper edge of the lens to its anterior surface, in doing which the upper fibres of the zonule of Zinn were



ruptured. Now the lens could be easily reclined into the vitreous body by pressing on its upper half.

Some time after the operation (19 to 160 days) the rabbits were killed with chloroform, the eyes enucleated and treated with 4 per cent. formalin, embedded in celloidin and examined microscopically.

We made 24 experiments. We will detail the clinical picture, which was not exactly the same in all cases, before going to the description of the pathological changes.

The operation was easily successful in most of the cases. It was in all of the cases followed by slight symptoms of irritation, as hyperæmia of the iris, pericorneal injection. This disappeared usually after from seven to ten days; in a few cases it persisted and even passed over into an iridocyclitis. In three cases this iridocyclitis was purulent and progressed to panophthalmitis.

In most of the cases the reclined lens rose after a while to the region of the pupil. In six cases only it remained lying flat on the lower wall of the eyeball. This tendency of the lens to rise and return to its normal position can be easiest explained by an incomplete rupture of the fibres of the zonule of Zinn; or, perhaps, by a stretching of the hyaloidea and stroma of the vitreous body without rupture; thus the elastic tissue of the vitreous body could easily press the lens back into its old place. This was also the explanation given by Arlt, as the rising of the lens after reclination was often observed by the older operators.

The pathological changes observed in the rabbits' eyes after reclination were not always the same.

The changes in 21 of the 24 cases may be classed in the following manner: (1) Obliteration of the iris-angle; (2) inflammation in the uveal tract and retina; (3) detachment of retina.

Obliteration of the iris-angle was seen in six cases. In one of these the whole iris-angle was obliterated. This obliteration was due in one case to the adhesion of the iris-periphery to Decemet's membrane by means of an exudation from the iris and ciliary body (iridocyclitis); in all other cases the lower periphery of the lens pressed the ciliary processes and the iris periphery against Descemet's membrane.

The second important change is the inflammation of the uveal tract, especially iridocyclitis, and in some cases panophthalmitis. Of these we saw six cases. Its cause was, as proven by microscopical examination, an accidental coccus-infection which took place during or after the operation in spite of all disinfecting measures.

The third and most frequent change was the detachment and subsequent degeneration of the retina. This was observed in all but five cases.

The manner in which the detachment occurs may be the following: On the one hand the instrument, which is entered through the sclerotic, as well as the lens during the operation must tear the stroma of the vitreous body. This leads to shrinking; on the other hand the connective tissue formed when the wound heals, also, leads by its shrinkage to shrinking of the stroma of the vitreous body with decrease of pressure, and thus favors detachment of the retina. This formation of connective tissue we found in many of the specimens, and we could see its origin from the spindle-cells which grew from the recent scleral scar into the vitreous body.

In the cases in which no detachment occurred the microscopic examination made a long time after the operation proved that the stroma of the vitreous body and the hyaloidea were normal. Among these were three cases in which there was no infection and no pressure of the reclined lens against the ciliary processes and iris periphery—i. e., completely successful cases of reclination.

Changes found in the reclined lenses were: disintegration of the fibres, vacuolization, deposits of lime, irregular proliferation of the capsular epithelium, proliferation of the elements of the nucleus arch, and general shrinkage of the lens. This latter was most apparent when the capsule had been intentionally or unintentionally ruptured. In rare cases the unruptured lens showed but insignificant changes, and in some with complete rupture of the capsule the cortex and muscles were perfectly absorbed. Incarceration of the lens at the bottom of the eye, as has from clinical signs been described by some authors, we have never seen. Where the lens lay upon the retina, this membrane and the choroid were almost totally changed to connective tissue and the lens capsule was firmly agglutinated to them.

Thus, the examination of these rabbits' eyes after reclination showed detachment of the retina in 79 per cent., iridocyclitis in 25 per cent., obliteration of the iris-angle also in 25 per cent.; only in 12.5 per cent. of the cases no serious pathological changes were found.

Since no scientific statistics of the successes of reclination are in existence it is impossible to say exactly what the percentage of losses from reclination was in man. It may be that this percentage was not so very high, as we have found it in the rabbit. It is Hirschberg's opinion, who particularly studied the question of reclination, that under favorable conditions the percentage of successful cases may reach up to 50. As to the character of the complications, our experimental data correspond very well with what resulted in former times from reclination in man. The difference is that the older authors mention iridocyclitis in the foremost place, then detachment of the retina, glaucoma and sympathetic inflammation, while in our experiments detachment holds the first place. Yet this may be explained in this way. Even with all antiseptic precautions in our experiments infectious iridocyclitis occurred; how much more frequent must have been such infections at a time when nobody thought of antisepsis and asepsis. The most frequently used instrument for reclination in man was a sharp needle, which very often must have ruptured the capsule. We know further, and it is proven by experimental studies, that all infectious traumata of the eye which are accompanied by a lesion of the lens, are more serious than others, and that they lead to panophthalmitis on account of the rapid development of the micro-organisms in the lens substance. On the other hand it is easily explained why now-a-days, in cases of reclination in man which are aseptically made by a trained hand, the percentage of infectious complications may be reduced to a minimum.

The fact that detachment of the retina is observed somewhat less frequently to follow reclination in man is easily understood when we consider the difference of the conditions under which this operation is performed in man and in animals. In rabbits' eyes undoubtedly a much greater traumatism was inflicted to the vitreous body than in the eye of man, for the reasons that the rabbit's lens is much larger in proportion



to the size of the eye, and that the instrument we used in our experiments was much larger than those used in man. In consequence the vitreous body was torn to a much greater extent than in the eye of man, and therefore detachment of the retina must of necessity happen more frequently and be of larger extent.

The reclinations which authors called successful because no detachment of the retina occurred are to be explained by the fact that during the operation the vitreous body was either not torn or had been fluid before. In the first case the lens sinks down to the bottom between the hyaloidea and retina, severing the vitreous body from the latter without rupturing it (*depressio cataractæ*). In the second case, on account of the previous degeneration of the vitreous body, it cannot be ruptured, and therefore no shrinkage can take place. Some such cases have been reported in literature (*Businelli*). Since liquefaction of the vitreous body alone cannot cause detachment and since this liquefaction accompanies a chronic choroiditis, by which choroid and retina are locally glued together, it is clear why a loose lens in the liquefied vitreous body is comparatively innocuous.

In summing up, we can say that the experimental studies confirm the clinical judgment concerning reclination, that this operation causes a great many more complications than extraction, and that it is successful in a small percentage of the cases only through the absence of the causes for these complications—a thing which cannot previously be determined. It is, therefore, a *justly abandoned method of cataract operation*. The only cases in which this operation has been employed by scientific surgeons are justified solely by peculiar circumstances and the impossibility of employing other methods of cataract operation. In such cases, as proven by our experiments and theoretical reasoning, depression of the cataract is rather to be advised than typical reclination, since it can be done with less trauma to the vitreous body.

Considering the cases of dislocations of the lens into the vitreous body without injury to the membranes of the eye, which are really cases of reclination or depression not performed by man's hand, but by an external injury, we can state that among these successful cases occur in which the eye be-

comes simply aphakic and retains vision, as well as unsuccessful cases in which the eye is lost in consequence of the different complications. Successful cases have been reported by Andrew,<sup>13</sup> Snell,<sup>14</sup> Chisolm,<sup>15</sup> Ljubinsky<sup>16</sup> and others. Several examinations of eyes which had been lost (Hasner,<sup>17</sup> Pr. Smith,<sup>18</sup> Habben<sup>19</sup> and others) show that the complications following dislocation of the lens are also detachment of the retina, iridocyclitis and glaucoma.

We believe that the cases of dislocation of the lens with a favorable ending can be explained just like those of reclinatio. In these cases the vitreous body was either not ruptured or it had been fluid and degenerated before the accident. In cases in which the membranes of the eye are not injured the vitreous is probably much less injured than during reclinatio; no instrument is entered into the vitreous body and the mechanism of dislocation cannot be compared to the forcible pressing of the lens into the vitreous body, as practiced during reclinatio. In traumatic dislocation the lens probably simply sinks down or glides to the place of least resistance. It is quite probable that during such an injury the vitreous body with its hyaloid, if only for a moment, is lifted from the membranes of the eye, and that the lens sinks into this space between ora serata and vitreous body when its suspensory ligament has been torn. In this manner we explain such cases in which the dislocated lens remains immovable at the bottom of the eye.

It is probable that in many of the cases of dislocation with favorable ending which have been reported the vitreous body was previously liquefied, since this has happened more frequently in myopic eyes. In such cases the lens may be movable without causing detachment of the retina.

<sup>13</sup>Loco cit.

<sup>14</sup>Jahresber. Ophth. XIII., p. 459.

<sup>15</sup>Jahresber. f. Ophth. XIII., p. 292.

<sup>16</sup>Westnik Ophthalm., 1898.

<sup>17</sup>Prag. Med. Wochenschr. 1882.

<sup>18</sup>Jahresber. Oph. XIV., p. 499.

<sup>19</sup>Diss. Jena, 1897.

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ERRATUM.—In Dr. Adolf Alt's paper in the March (1901) number of this journal, Figures 3 and 4 on page 68 have by mistake been reversed.

## CORRESPONDENCE.

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### THERAPEUTIC VALUE OF SUPRARENAL EXTRACT.

MEMPHIS, TENN., April 2, 1901.

Editor AMERICAN JOURNAL OF OPHTHALMOLOGY.

*Dear Sir*—In the last number of your journal there was an article from Dr. Alt on "Adrenalin," in the course of which he said that the remedy was without therapeutic value in diseases of the eye. While this is undoubtedly true in most instances, I wish to mention a case which I have recently seen in which the opposite was demonstrated.

Mr. W., while coming to town on a street car, was taken with a violent burning pain in the right eye. This increased during his trip, and he came directly to my office, arriving there about twenty minutes after the first symptoms were perceived. I found a very violent conjunctivitis, with profuse lachrymation and intense palpebral and bulbar injection. Of course the first thought was of a foreign body, but there was no scratching, and careful search failed to find one. I first instilled a few drops of a four per cent. cocaine solution, and then a few drops of a solution of Armour's suprarenal extract, ten grains to a dram of saturated solution of boracic acid. In a few minutes the eye was of perfectly normal appearance and felt just as comfortable as the other one. I expected the symptoms to return as soon as the effect of the drug wore off, and directed that he go home and stay indoors. Before he left the office I made an application of nitrate of silver (two per cent.) to the lids. He was to report to me by telephone that afternoon. He did not do so, and I did not see him again for several days, when I met him on the street. He then told me that the injection and discomfort had never reappeared, and the eye had remained white and comfortable ever since he left my office. He had gone home, but that afternoon had felt well enough to return to his office and had experienced no inconvenience. I attribute the result to the suprarenal extract, and believe the secret of its felicitous action was in its being applied so soon after the inflammation began.

Yours very truly, E. C. ELLETT, M.D.



# MEDICAL SOCIETIES.

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## PROCEEDINGS OF THE WILLS' HOSPITAL OPHTHALMIC SOCIETY, PHILADELPHIA, PA.

*Meeting of March 11th, 1901.*

DR. S. D. RISLEY in the Chair.

The members of the staff of Wills' Hospital in Philadelphia have formed themselves into an association known as the "Wills' Hospital Ophthalmic Society." The object of the association is to "promote the scientific usefulness of the institution by the discussion of papers and the exhibition of patients who have been under the care of the members of the attending staff." Meetings will be held twice a month and reports of the proceedings will be published.

### SYMPATHETIC OPHTHALMITIS.

DR. FRANK FISHER presented a case of sympathetic ophthalmitis coming on after a panophthalmitis which had followed a cataract extraction, the patient being 64 years of age. He laid especial stress on the age at which the ophthalmitis had developed and the long period of time elapsing between the condition and the cataract extraction.

DR. WILLIAM ZENTMAYER inquired whether it is not rare for the disease to evidence itself in cases in which there is panophthalmitis.

In answer to DR. JOHN T. KRALL's question, whether the fundus of the sympathizing eye had been examined, DR. FISHER stated that when he saw the case the eyeground had become invisible.

DR. RISLEY asked whether subconjunctival injections of solutions of chloride of sodium had ever been tried by any of the members of the staff.

DR. WALTER L. PYLE believed that the occurrence of sympathetic inflammation after panophthalmitis depended upon the amount of destruction of the globe. He believed that if there was decided scleral rupture and escape of most

or the intra-ocular contents sympathetic ophthalmitis was not likely to follow.

DR. CHARLES A. OLIVER had found that all attempts to do useful iridectomy in such cases were futile, the iris-tissue being brittle and friable; while any obtained good results are rapidly lost. He had been successful in several instances by either the Critchett-Story operation or Tyrrell's method of drilling. He had never employed subconjunctival injections to any advantage nor as yet had made use of large doses of the alkalies, but thought if lymph-formation and circulation are good the former method might be of assistance.

#### FALSE MACULÆ.

DR. GEORGE C. HARLAN presented a case of false maculæ. The patient, a white man, 23 years of age, whose family and personal histories were negative, had squinted since childhood. He could use either eye. On February 23, 1900, he was admitted to the hospital with an esotropia of 40 degrees, preferably fixing with the left eye. A tenotomy of the right internal rectus muscle with an advancement of the corresponding external rectus was done, leaving a residual squint of about 10 degrees. Two weeks later similar operations were performed on the left eye with the result of an overcorrection of 10 degrees. On January 23rd of this year the perimeter showed 10 degrees of esotropia. Maddox rod gave 20 degrees of crossed diplopia. At this time a tenotomy of the right external rectus muscle was done, allowing both eyes to fix centrally, but the crossed diplopia remained the same. One week later it was found that the esotropia of 10 degrees still persisted. There was not any monocular polyopia. During fixation with both eyes a crossed diplopia of between 8 and 16 degrees with a hypophoria of one-half to two degrees could be determined.

DR. ZENTMAYER made mention of a case of divergent squint with homonymous diplopia occurring in a bright student.

DR. RISLEY stated that it was not infrequent to find diplopia after the correction of a divergent squint. He reported a case of cataract extraction on an amblyopic convergent eye in which vision after the operation equaled  $\frac{6}{12}$  of normal. A later operation upon the fellow, previously fixing, eye in which

vision was brought to more nearly normal, resulted in the patient afterwards having diplopia.

DR. FISHER reported a case in which a patient with marked divergence could at will associate the images of the two eyes and dislodge them to his greater comfort.

DR. OLIVER gave the details of a case of marked esotropia in early life with want of binocular fusion, that through operative interference and want of proper corrected lenses was transferred in early adult life into a case of pronounced though comfortable divergence with good vision in each eye. Recently, for cosmetic purposes, a colleague had so successfully attempted to bring about a parallelism in the two organs that a most troublesome series of diplopias took place, necessitating an operation to restore the originally induced condition of comfortable divergence.

DR. BERENS mentioned neuromuscular memory as being one of the factors in this type of cases, and desired to see careful studies from the standpoint of the psychologist made.

#### SUCCESSFUL EXTRACTION OF A FOREIGN BODY FROM THE VITREOUS CHAMBER.

DR. BERENS presented a case of successful extraction of a foreign body from the vitreous chamber with a resultant vision of  $\frac{6}{9}$  of normal. The patient, a man, 38 years of age, came to the hospital on February 12, 1901, with the history of having been struck in the left eye one hour previously by a chip-ping from a hammer. The external wound, which was vertical and three millimeters in size, was situated in the cornea five millimeters' distance from the nasal limbus. There was a corresponding wound in the iris. The pupil was four millimeters in size, and central, and the iris reacted well. Under atropine the pupil enlarged to eight millimeters. There were numerous vitreous opacities anteriorly and some posteriorly. The details of the eyeground were slightly veiled. Far down and to the inside two semilunar areas, one of which at first showed a suspiciously bright point, could be seen. Under Dr. Beren's guidance, the senior resident surgeon enlarged the corneal wound down and in, did an iridectomy, and placed a magnet tip towards the side of the retinal laceration. Three unsuccessful attempts being made in this direction, Dr. Berens



took the tip and inserted it twice, the second time down and out, recovering a piece of steel from that locality. Atropine was instilled and a bandage was applied. On the next day there was slight reaction, but there was not any pain. Two days later there was a moderate injection. At this time the patient could tell time on a watch at one-half meter's distance. In eight days' time the eye was quiet, and vision equaled  $\frac{6}{20}$  of normal. The eyeground could be distinctly seen. Four days after this vision had risen to  $\frac{6}{9}$  of normal, and the eye was quiet.

#### DOUBLE COLOBOMA OF THE IRIS, CHOROID AND OPTIC NERVE.

DR. OLIVER exhibited a case of double coloboma of the iris, choroid and optic nerve, with unusually small corneæ, in an Italian girl, 16 years of age. As far as could be ascertained there was not any history of inheritance, nor were there any other signs of congenital malformation present. The colobomata were in their usual positions, downwards and slightly inwards, those of the right eye being the larger. The characteristic curvilinear extension of the retinal vessels along the borders of the colobomatous areas could be plainly seen. The surfaces of the fundus colobomata, which were on a much deeper level than the rest of the eyegrounds, were quite ectatic in places. Refraction in the uninvolved muscular regions was myopic and slightly astigmatic. Corrected vision equaled about  $\frac{2}{3}$  of normal. The visual fields showed defects corresponding with the fundus abnormalities. Both optic nerve-heads were considerably enlarged. The retinae in the colobomatous areas were visible as thin, almost transparent membranes over and in which a few small vessels could be traced. The case was particularly interesting in the fact that in spite of the apparent microphthalmus the eyeballs were enormously lengthened in their antero-posterior diameters, giving high degrees of myopic refraction.

#### FOREIGN BODY EXPELLED FROM THE EYEBALL.

DR. OLIVER also showed a patient from whom a chip of iron had been spontaneously extruded from the eyeball two years after its entrance into the crystalline lens through the cornea and the iris. No reaction followed the expulsion of the foreign

body. The lens itself had been studded with brilliant cholesterol crystals for more than a year's time.

#### PLASTIC OPERATION FOR SYMBLEPHARON.

DR. BERENS presented a case showing the recent effects of a plastic operation for symblepharon in which the conjunctiva of the upper lid had been adherent to the cornea over more than two-thirds of its surface, entire freedom of motion being restored to the globe.

#### INTERSTITIAL KERATITIS.

DR. OLIVER gave a brief account of a case of interstitial keratitis occurring in the left eye of a man, 24 years of age, suffering from other stigmata of hereditary syphilis. He had treated and cured the patient's right eye for a similar attack of keratitis some six months previously. The point of interest in the case consisted in the fact that at the time of the patient's second admission to the hospital, some three weeks previously, the senior resident surgeon, Dr. Van Epps, discovered a sloughing chancroid involving almost the entire foreskin of the patient's penis, necessitating excision of the sloughing part of the organ.

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RESECTION OF THE SUPERIOR CERVICAL GANGLION OF THE SYMPATHETIC FOR GLAUCOMA, AND ITS RESULTS.—H.W. Dodd, F.R.C.S., reports a case of glaucoma occurring in a woman aged 44 years, in which the removal of the superior cervical ganglion on each side was immediately followed by a marked reduction to normal tension of the eyeballs. The patient's eyeballs remained soft for about two months, when symptoms of glaucoma reappeared, and a month later the eyes had returned to the same state as they were in before the operation was performed. Therefore, although in this case the immediate effects were extremely favorable for a few days, the permanent result of the operation for the cure of the glaucoma was *nil*. The central origin of chronic glaucoma may be a fact, but if it is so, the removal of the superior cervical ganglion apparently does not interrupt the connection with the eye. Either the connection is not by this route or some other means of communication is established very soon after the resection of the ganglion.—*Lancet*.

## ABSTRACTS FROM MEDICAL LITERATURE.

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By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### PTERYGIA; PATHOLOGY AND TREATMENT.

M. F. Weyman (*Annals of Ophthalmology*, July, 1900) draws the following conclusions:

1. The head of a pterygium, though the most dreaded part on account of its possible encroachment on the pupil, is genetically an accident and secondary occurrence.

2. The origin and development of pterygia is to be sought in chronic conjunctival inflammation, causing loss of conjunctival elasticity and eventually shrinkage.

3. Pterygial degeneration having begun in the conjunctiva, the head is formed on the cornea on account of the kerato-scleral angle which, during extreme lateral excursions, favors detachment of the lamina vitrosa anterior and its epithelium.

4. The head ceases growing near or at the center of the cornea because the kerato-scleral angle is there effaced.

He supports these assertions by arguing from the pathological findings, which are well known. He does not believe in the causal relation of marginal ulcers of the cornea. He advises the removal of all pterygia. His reasons are:

1. A pterygium may become non-progressive, and with the removal of the cause, even atrophic, but such cases are very rare. It is the very slow growth that leads us to believe they are declining.

2. On account of the corneal cicatrix left at the site of the head.

3. Serious complications may become inevitable (relapsing tendency, strabismus, and even blindness) if we delay.

4. The operation, properly done, is absolutely harmless.

In operating, he first excises the pterygium, and then cuts away the vascular thickening beneath it. He then slides the conjunctiva over the denuded area, and puts in enough sutures to obtain very accurate approximation of the edges.



## THE AMOUNT OF MYOPIA CORRECTED BY REMOVAL OF THE CRYSTALLINE LENS.

Edward Jackson (*Journal of the American Medical Association*, March 16, 1901) makes a plea for a more complete and exact study of the refraction and corneal curvature before and after extraction of the lens for myopia. He presents a table showing the dioptries of myopia before operation, the anticipated theoretical change for axial myopia, the average change noted, the maximum and minimum changes, and a number of cases of last degree of myopia, varying from 10 to 35 dioptries. The author also discusses the optical changes produced by removal of the crystalline lens in myopia due to excessive corneal curvature, in that due to excessive refractive influence of the lens, and in increased length of axis.

## CONTRIBUTION TO THE STUDY OF THE PERFORATION OF THE SKULL BY SARCOMATA WHICH ORIGINATE IN THE ORBIT.

Vieusse (*Science Medicales des Bordeaux*, February 19, 1901) presents the following conclusions: Sarcomata which develop in the orbit are almost all melanotic in type; they are essentially malignant tumors, often causing the death of the patient. Their malignancy appears to be due to the pigmented material which they contain. In certain cases, not numerous it is true, the neoplasm penetrates into the skull by breaking through the walls of the orbit; it does not ordinarily cause cerebral trouble, because that part of the tumor which invades the cranial cavity is smaller and develops slowly. The perforation of the skull by a sarcoma of the orbit has no influence on the surgical treatment which these tumors demand.—*Recueil D' Ophthalmologie*, December, 1900.

## REMOVAL OF THE RIGHT UPPER CERVICAL SYMPATHETIC GANGLION FOR THE RELIEF OF GLAUCOMA SIMPLEX.

D. H. Coover (*Philadelphia Medical Journal*, March 16, 1901) reports the case of a man, aged 65 years, upon whom this operation was performed. The immediate results of the operation were very encouraging, and were as follows: Tension was lowered to almost normal. There was contraction of the pupil and slight reaction. There was increase of the visual field and of visual acuteness, and the temporal field or nasal side of the retina improved, while the nasal field or temporal

side of the retina did not improve. These conditions remained until an attack of supposed "cold in the eyes" appeared, which proved to be nothing more than the return of the former disease—glaucoma. The writer believes that the operation is of no service in glaucoma simplex when vision has been reduced to zero, as the final outcome of this case demonstrates, but may be of service in arresting the disease in the earlier stages and in retaining vision before atrophic changes have taken place in the nerve, retina, and choroid. After miotics and iridec-tomies have failed to relieve the disease, it is then that we are justified in advising sympathectomy in hope of relief from permanent blindness. Even then there is no assurance that the glaucomatous attacks will not return months afterward. The operation when performed by an expert is not dangerous.

#### ALVEOLAR SARCOMA OF THE CHOROID.

William Posey and Edward A. Shumway (*Annals of Ophthalmology*, January, 1901) report a case and call attention to the following points as of interest:

1. The form of growth—infra-vascular angio-sarcoma—developing from the endothelial cells of the choroidal vessels.
2. The early appearance of the glaucomatous phenomena.
3. The marked inflammatory changes and hyaline degeneration of the iris and ciliary body.
4. Degeneration of the optic nerve.
5. The advanced age of the patient—seventy years.

#### OPHTHALMIC NOTES FROM THE TROPICS.

H. Campbell Highet (*Journal of Tropical Medicine*, February 15 and March 1, 1901) gives a list of eye diseases most frequently seen in Singapore and Bangkok. Syphilitic diseases of the eye show some peculiar features; syphilitic iritis appears to be much more severe in the tropics than in temperate climates. The results of treatment of tertiary lesions of the eye are usually quite satisfactory. Malarial affections of the eye amount to 2.2 per cent., and consist of œdema of the ocular and palpebral conjunctiva, keratitis (interstitial and superficial), cortical cataract, retinal hæmorrhage, and night-blindness. In leprosy the eye lesions are not marked in the anæsthetic form, but are severe in the tubercular form.

THE MODIFIED OPEN TREATMENT AFTER OPERATIONS  
ON THE EYEBALL.

E. Heimann (*Münchner Med. Wochenschrift*, February 19 and 26, 1901) condemns the customary tight dressing applied after operative procedures on the eyeball as exercising an undesirable amount of pressure, impeding the natural cleansing movements of the eyelids, being easily displaced and insecure, promoting the retaining of secretion and growth of bacteria, and causing the patient discomfort and annoyance. The treatment he recommends consists in the application of some form of dressing so combined as to relieve the eye itself from all pressure and to permit unrestricted motion of the lids. This can be constructed of wire, rubber, celluloid, etc., and will protect the wound against infection and mechanical injury without being open to the objections urged above.

## RHEUMATIC DISEASES OF THE EYE.

H. W. Woodruff (*Journal of the American Medical Association*, February 9, 1901) thinks the muscular, fibrous, and vascular tissues of the eye render it particularly susceptible to rheumatic affections. The author finds that chronic rheumatism very frequently causes iritis, episcleritis, scleritis, ocular palsy, glaucoma, and hyalitis. He considers scleritis the most serious, but also the most rare ocular disease due to rheumatism.

CONCERNING THE DEVELOPMENT OF ASTHENOPIA AND  
ERRORS OF REFRACTION.

Carl Schulen (*Annals of Ophthalmology*, January, 1901), in discussing the causes of asthenopia, mentions first auto-intoxication from the bowels, etc., after that the gouty diathesis, sexual disorders, and undescended testicles. He thinks one of the most frequent causes is a poorly-darkened sleeping room, especially if the sleep from any cause is not profound. The surroundings during sleep, especially in children, deserve careful attention. He thinks poorly-lighted school-rooms very rarely cause asthenopia, that astigmatism and myopia are rarely congenital but originate in early youth, are binocular in origin, being caused by abnormalities of the extra-ocular muscles, and that these originate mostly in the night during sleep.



REMARKS ON SCROFULOSIS AND TUBERCULOSIS, WITH A  
CONTRIBUTION TO TUBERCULOSIS OF THE  
CONJUNCTIVA.

W. Uhthoff (*Berliner Klinische Wochenschrift*, December 10, 1900) believes it justifiable to still further restrict the term "scrofulous." Especially in diseases of the eye the so-called "scrofulous," but not truly tuberculous affections, occur in tuberculous subjects. Tuberculosis itself frequently prepares the soil for the so-called scrofulous diseases. Although the phlyctenule most frequently occurs in scrofulous and tuberculous children, it should not be considered as directly characteristic of scrofula. The author has observed in his clinic, in a certain relatively small percentage of cases, that phlyctenules occur without the slightest symptoms or history of scrofula, tuberculosis, or previous disease of the eyes. Bacteriological examination of the phlyctenule has not yet demonstrated the etiological factor. According to the experiments upon animals, made by Valude and others, the healthy conjunctiva does not present a portal for the entrance of the tubercle bacilli. The author believes that as a whole the conjunctiva does not easily absorb infectious materials, as can be seen per example in diphtheritic conjunctivitis, which frequently exists without any systemic disturbances. In certain experiments that have been made with the toxin of pest, inoculation into the conjunctiva produced positive results by reason of the fact that the poison was conveyed through the lacrymonasal passages into the nasopharyngeal space. The author reports a case of tuberculosis of the conjunctiva occurring in a girl of 15 years, whose brother had died of tuberculosis. There had been a previous prelacrimal abscess on the left side that had undergone spontaneous suppuration, and had left a fistula with impediment of breathing on the affected side. The upper and lower palpebral conjunctivæ showed a condition which could easily, and was at first, diagnosticated as trachoma. There was swelling of the preauricular and cervical glands. Examination of the nose and pharynx showed marked changes in the mucous membrane and the formation of granulation tissue. Microscopical examination of excised portions of the conjunctiva from the lower lid established with certainty that the process was of a tuberculous nature; but

those portions taken from the upper lid showed no signs of tuberculosis, but simply chronic hyperplasia. Regarding the latter it is still to be determined whether this non-specific portion of the process is caused by the tuberculous area. Either it is due to the toxic effect of the tubercle bacilli, which causes chronic thickening, by reason of a long continued influence, or the continued irritation due to the presence of these toxins may give rise to secondary changes in the conjunctiva without any specific influence being exerted by the toxins themselves; or finally, there may be a mixed infection in such a long exposed tuberculous area, whereby organisms other than the tubercle bacilli may give rise to the secondary involvement. That non-tuberculous changes may occur in tissues surrounding tuberculous areas is illustrated in other tuberculous inflammations of mucous membranes, such as pleurisy, meningitis, and arthritis.—*Phila. Med. Journal*, February 9, 1901.

AMBLYOPIA FOLLOWING THE INTOXICATING USE OF  
JAMAICA GINGER.

Edward Stieren (*Journal of the American Medical Association*, January 5, 1901) finds eight recorded cases in American ophthalmic literature of blindness following the ingestion of ginger. His case was that of a man, 36 years of age, who had been drinking heavily. On sobering up in a place where he could not obtain liquor, he consumed one dozen ounce-bottles of Jamaica ginger in one forenoon. About noon he fell into a deep stupor, from which he awoke about 3 P.M., totally blind. Treatment consisted in confinement to bed in a dark room; three hot foot baths were given during the night, and twenty grains each of calomel and compound jalap powder in divided doses; also two one-eighth grain doses of pilocarpine mur. hypodermically. The pilocarpine and calomel were continued for two days, when they were discontinued and twenty-grain doses of potassium iodide given. On the fifth day his vision was  $\frac{20}{30}$  in each eye. The lesion in these cases is believed to be a retrobulbar neuritis.

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ORIGINAL ARTICLES.

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QUEER BEHAVIOR OF A BIT OF GLASS WITHIN  
THE EYE.

BY CHAS. H. BEARD, M.D.,

CHICAGO.

G. W. G., aged thirty-two, a chemist for the Standard Oil Company, consulted me on March 10th, 1899, relative to an injury of the left eye. Two days before he had been making certain tests which consisted in filling strong glass globes with gases, sealing them tightly, and, by means of inserted wires, producing an electric spark therein, and igniting the gas. The considerable pressure thus generated proved too great for one of the globes, which exploded with great violence, many fragments of glass striking the experimenter in the face. The patient at once sought the services of a physician, who removed all those bits that he could find and gave him a solution of atropin for the eye. The latter, however, became painful, and these were the conditions I found:

A moderate, or light, plastic iritis with a tendency to adhesion inferiorly; an angular, valve-like wound through the cornea just exterior to the center, the two sides of the flap covering which would each measure about two millimeters.



Although the anterior chamber was not obliterated when the eye was first looked at, light pressure on the lids caused the aqueous to escape freely through the wound. A tiny abrasion of the anterior capsule of the lens directly behind the corneal wound, but absolutely no trace of any injury to the substance of the crystalline. It was evident that the same instrument which had punctured the cornea had pricked the anterior capsule. The most careful scrutiny failed to reveal the foreign body anywhere within the eye. The media were clear and the fundus normal with the exception of an area of œdema of the retina, occupying the center of the infero-temporal quadrant. The central vision was normal, but a blur was present in the supero-nasal field. Had a particle of glass or other material lodged within the eye and become lost to view, or had a needle-like piece punctured the cornea, jabbing the lens, and been withdrawn? All subsequent actions, or rather reactions of the eye, argued in favor of the first proposition.

The patient came to my office every day for one week. Meanwhile the eye had become quiet, the corneal wound had healed, and the iritis had disappeared. I had also made several exhaustive but vain searches for a foreign body. By the end of the week unmistakable detachment of the retina had occurred at the site of the primary œdema. The large vein traversing the area occupied a ridge from which its branches fell off like the veins from the stem of a wilted leaf—not flat and straight like those of a fresh, crisp leaf, as they should, and several grayish, opaque streaks appeared in the affected portion.

The patient was at once sent to the Passavant Hospital, put to bed and not permitted to rise from a recumbent posture on any account; both eyes were kept bandaged, and he was given daily hypodermics of the muriate of pilocarpine, increasing same until full physiological effects were obtained. After fourteen days of such treatment the retina was found to be re-attached. About this time another attack of iritis supervened, and again I made a careful search for a foreign body. I discovered a yellowish-white fungus-like growth on the iris near the bottom of the anterior chamber. On April 2d I called Dr. Hotz in consultation, and he inclined to the

belief that the foreign body was hidden in this growth. As a result, on the following day, April 3d, I made an incision with a keratome straight downwards, an assistant holding a delicate cotton sponge just beneath the knife to catch the aqueous, together with whatsoever it might contain. With the first gush of the aqueous most of the fungus escaped; the rest was easily removed with forceps. No foreign body was found, although it was sought for with the aid of toilet-forceps and a delicate spatula. The eye recovered readily from the operation; but on the night before the patient was to leave the hospital, in a fit of nightmare, he threw himself from his bed and struck the bandaged eye on the corner of a glass table so violently as to open the keratome incision and cause profuse bleeding. Singularly enough, when the eye cleared up—which it did very quickly—the retina was found undisturbed. The patient was sent home, but after a few days (April 19th, 1899) he came to my office with another attack of iritis *and with a bit of glass plainly visible in the anterior chamber*. Mr. G. stated that, on the evening before, he had gone down into the basement of his house to attend to the furnace, and that in attempting to look at the bars of the grate therein he had stooped forward, lowering his head almost to the floor; that in doing so he had felt a peculiar sensation in the eye as if something had given away.

Here then, after six weeks, was the foreign body which had been the cause of all our anxiety, and I resolved not to lose sight of it before making an attempt to extract it. I placed the patient in the operating chair at once, and, with the aid of Dr. E. L. Schwarz, set about it. I fancied that, by making an incision as before, if the glass did not come away with the aqueous I might be able to grasp it with smooth-jawed forceps. With the obliteration of the anterior chamber, however, the foreign body was caught tightly between the iris and cornea, even pushed down into the stroma of the iris so deeply that it was nearly lost in the excavation thus made, and resisted all attempts to remove it with forceps. I feared that a sharp angle would pierce the iris and anterior capsule, so taking the iridectomy forceps I quickly seized the iris on either side of the depression containing the glass, withdrew it and made an iridectomy which included the glass.

The fragment was of rhomboid shape and measured 3 by 1 by  $\frac{3}{5}$  millimeters. The eye recovered promptly and has remained healthy and quiet.

I last saw the patient in January of the present year (1901); the vision and refraction in the operated eye at that time were:

L.V. =  $\frac{20}{30}$ ;  $\frac{20}{15}$  w. + 0.5 c. ax  $180^{\circ}$ .

By ophthalmoscopic examination at this time the retina was found to be normal. The only indications of there having been anything wrong at the site of the detachment were a few tiny orange-colored spots, and a few crystals of cholesteroline in the corresponding portion of the choroid.

Clearly, to my mind, the foreign body had been all this while in the posterior chamber. As to the manner in which it got into this chamber one can only surmise. It is barely possible that it passed through the iris, although there was no cicatrix visible, and, besides, the relative positions of the corneal and the capsular wounds argued against such a supposition. It may have stuck for a time in the anterior capsule, then, after the mydriasis from the atropin occurred, it might have let go and fallen behind the iris. Or it might have lodged first in the anterior chamber, and later, through some prone position of the head, have slid over the pupillary margin into the neighboring chamber. Certain it is, in my opinion, that there was where the foreign body lurked from the time I first saw the case until the evening before it was removed.

It is doubtful, owing to the small size of the particle, whether the Roentgen rays would have been of service in locating it, but these would soon have been resorted to had conditions not changed as they did. Yet, even had the position of the glass been thus determined, any attempt to extricate it from its original situation would have meant more traumatism and, possibly, disaster.



THE ESTIMATION OF THE DANGER OF  
SYMPATHETIC OPHTHALMITIS.\*

BY EDWARD JACKSON, M.D.,

Ophthalmologist to the Arapahoe County Hospital; Consultant in Ophthalmology to St. Anthony's Hospital, Denver; Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic.

CASE I.—A woman, aged 60, came with a history that three years before she had suffered from violent inflammation of the left eye, which had lasted for nine months. The inflammation had followed a traumatism, but there was no evidence of a penetrating wound. Two years afterward inflammation had occurred in the right eye. In neither eye had there been any relapse or recurrence of inflammation. In neither eye was the tension diminished. The left eye, with the pupil dilated, counted fingers at two feet; the right eye at three feet. The right eye showed three broad, posterior synechiæ. The left pupil was bound down, except at the upper sixth of its circumference. This patient had consulted five ophthalmologists of large experience, three of whom advised enucleation of the left eye to prevent blindness of the right. The same measure had been strongly urged by two general practitioners who had charge of her case.

CASE II.—A man, aged 61, had suffered twelve years before from cataract of the right eye which followed typhoid fever. Early in January, during an attack of the grip, acute glaucoma occurred in the eye. The ophthalmologist called in did iridectomy under cocaine, and during the operation the hypermature lens "popped out upon his sleeve." Next day the eye showed some vision and continued to improve. But the corneal scar bulged, the eye continued sensitive and slightly painful, and the operator strongly urged that it be enucleated. Disagreement as to this brought the patient to me six weeks later.

I found the tension of the operated eye was not diminished, but it was at times somewhat increased. The bulging of the corneal scar seemed sufficient to account for the pain and hyperemia. There were no symptoms of sympathetic trouble in the other eye. At the end of three months the

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\*Read before the Denver Ophthalmological Society, April 13, 1901.

operated eye had, with a correcting lens, central vision of  $\frac{4}{25}$  and a field of considerable practical value.

CASE III.—A man, aged 42, came to me with the history that nine years before his left eye was lost by an accident while gunning. A shot was supposed to have penetrated the sclera at the nasal side and to have lodged in the eyeball. The eye had become free from inflammation in a short time, and had remained so, although its tension was —T<sup>2</sup>. It possessed bare light perception. A week ago the right eye had become the seat of a violent iritis, which a colleague refused to treat unless he was permitted to enucleate the blind eye, evidently believing that he had to deal with a case of sympathetic inflammation. But there was no hyperemia, tenderness, or other disturbance of the blind eye. The acute iritis had not the special characters of a sympathetic inflammation, and had come on after excessive eye-work. I regarded it and treated it as a case of rheumatic iritis. The eye recovered with vision of  $\frac{4}{3}$  partly, which was retained; and there had been no relapse seven years later.

These cases may serve as the text for what I have to say upon this subject. Tacitus long ago observed that the unknown is always magnified. In our ignorance of the essential nature of sympathetic ophthalmitis the possibility of its occurrence is calculated to arouse a terror of it, that is fatal to calm judgment. Among general practitioners this state of mind is quite common. We have all seen cases referred for decision as to the necessity of enucleation, where there was not the slightest reason to suspect a need for it. These of course must be considered along with the cases in which sympathetic inflammation is allowed to develop before the danger of it was seriously considered. Both classes are due to lack of acquaintance with the disease, or carelessness regarding its possible indications. But with the very best knowledge of it that we have and the most careful watching, there still remains an uncertainty regarding sympathetic ophthalmitis which is necessarily sometimes alarming. Cannot this uncertainty be somewhat lessened by a better understanding of a few cardinal symptoms that may serve as landmarks?

In the first place, sympathetic ophthalmitis follows injury.

But as a rule it follows only such injuries as cause penetration of the sclero-corneal coat with infection of its contents. I have never seen a case in which the history of such an injury was lacking. I know that a number of cases are reported as cases of sympathetic disease in which the injury was not attended with such perforation. But I do not know of any such case in which the course of the disease was at all the typical course of sympathetic inflammation. Anomalous cases should always be scanned most critically. And it is illogical to admit as a case of sympathetic inflammation, one that arises in an exceptional way, unless its symptoms and course are characteristic, and make it certain that no other explanation of its character is reasonable.

Secondly. Sympathetic inflammation does not follow mere injury of the exciting eye, whatever its character. If the injured eye wholly recovers it never excites sympathetic ophthalmia. Only when it remains permanently impaired and the seat of a distinct irido-cyclitis does it endanger the other eye. Among the symptoms of this special form of irido-cyclitis, diminished tension of the eyeball is so constantly present that its absence should almost rule out danger from sympathetic inflammation.

Third. The course of sympathetic inflammation is on the whole quite characteristic. It is marked by an insidious onset, the absence of which was an important fact in case 3 of the above series. It shows a strong tendency to temporary improvement and relapse. By the time the inflammation has become severe there is generally reduction of intra-ocular tension. In all cases of sympathetic inflammation there is organic disease of the uveal tract. This is speaking of the disease as we know it; a disease liable to cause blindness of the sympathizing eye.

Finally. The greatest confusion has sprung from lack of discrimination between sympathetic irritation and sympathetic inflammation. Under the head of sympathetic ophthalmia both are included, although the former is clearly not an inflammation of the eye, but a neurosis. That the essential pathologic condition of this neurosis may be a factor in causing sympathetic inflammation is quite possible. Still the common differences in the lesions of the exciting eye, and of



the time that has elapsed since the injury, seem to indicate that sympathetic inflammation and sympathetic irritation are quite distinct. At least this is clear, that sympathetic inflammation has its peculiar essential factor quite apart from the neurosis.

It would seem absurd to waste time in insisting on this distinction between sympathetic inflammation and sympathetic irritation were it not so persistently ignored, even in most recent literature. While preparing this paper there comes to hand *La Clinique Ophthalmologique* of March 25, 1901, in which Guibert reports four cases of "sympathetic ophthalmia"; one of which was a case of typical sympathetic inflammation, one of irritation without any inflammatory symptoms, and two anomalous cases in which sympathetic irritation was probably complicated by some sort of inflammation, but which were not cases of sympathetic ophthalmitis. Yet he proceeds to generalize upon them as though they were all instances of one and the same pathological condition.

A clear discrimination between sympathetic ophthalmitis and sympathetic irritation is of the greatest practical importance. The confusion of these two conditions is responsible for much of the uncertainty that still exists regarding sympathetic ophthalmia. A careful examination of the literature will show that most of the anomalous cases, the cases that confuse and blur the clinical picture of sympathetic ophthalmitis, really are cases of sympathetic irritation.

But sympathetic irritation is a condition about which we do not need to worry our patients or ourselves before it actually arises. No matter how severe or how long continued it may be, it can be cured by removal of the exciting eye at any time. Donders' case of restoration of normal vision in the sympathizing eye, after two years of blindness, within a few hours following the enucleation of the exciting eye, is an extreme yet typical instance. We are never compelled to do a prophylactic enucleation for sympathetic irritation. Indeed one is not justified in doing enucleation or its substitutes merely to prevent the possible occurrence of a condition that will be so readily and certainly curable if it should arise. The condition that we do have to guard against by prophylactic enucleation is one marked in every case by the organic

changes of inflammation, and, as I believe, always of inflammation involving the uveal tract.

Every report of a case of "sympathetic ophthalmia" which does not make clear that the case does or does not belong to this class merely adds to our confusion and thus is harmful. It is certain that most cases of sympathetic disease, arising long after the injury of the exciting eye, or from non-perforating injuries, or which are excited by eyes that have undergone degenerative changes without traumatism, are cases of sympathetic irritation. Of the same nature are most of the cases that arise after the exciting eye has become quiet and free from tenderness. But we cannot, from the literature, feel sure that all cases that arise under such circumstances are of this less dangerous character.

When this confusion of sympathetic irritation and inflammation has been cleared away, and our ideas concerning the latter are rendered more definite, we shall probably be able to distinguish very clearly the clinical picture of sympathetic inflammation, and the exact conditions that are likely to be followed by it. Even now a sufficiently accurate estimate of that danger may be formed to avoid hastily condemning to enucleation cases like those narrated above. Such an estimate should also prevent the sending out into the community of patients who, after being told that they would "go blind" unless they submitted to enucleation, have lived for many years without going blind, and without suffering the annoyances of an artificial eye. Patients with such a history teach their friends how little surgeons know about the matter; and ultimately cause blindness by leading some one to refuse enucleation when it is really needed.

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#### PAMPHLETS RECEIVED.

"The Electric Skiascope," by H. Wolff, M.D.

"Self-Examination for Medical Students." P. Blakiston's Son & Co.

"Choroiditis and Retinitis Centralis Serosa," by H. Wolff, M.D.

"A Rule for Combining Crossed Cylinders," by H. S. Pearse, M.D.

## OPTIC NEURITIS FROM INTRA-NASAL DISEASE.\*

BY DERRICK T. VAIL, M.D.,

Oculist to Cincinnati Hospital and German Deaconesses Hospital; Clinical Lecturer,  
Ophthalmology, Miami Medical College, Etc.

CINCINNATI, OHIO.

THE thin shell of bone separating the orbital tissues on the one side from the nasal structures on the other has subserved the purpose of a true and impervious boundary wall between the eye and the nose.

The structures, functions and purposes of the eye and its auxiliary tissues are so very different from those of the nose that some oculists disdain such an apparently alien neighbor as the nose; and, on the other hand, a few rhinologists boast of knowing as little of the eye as of the bones of the foot.

A true boundary between the eye and the nose does not in reality exist; on the contrary there is a very intimate connection. Beside mere contiguity, there are abundant and open nervo-lympho-vascular relationships, so that we should regard the innervation, the lymph and blood circulation of the eye and those of the nose together and not apart. The nasal branches of the trigeminus nerve supplying the ethmoidal, sphenoidal and frontal sinuses are offshoots of the ophthalmic branches of the same nerve lying within the orbit. The arterial supply and the venous drainage of the upper accessory sinuses are really part and parcel of the ophthalmic system of arteries and veins. The lymph channels of the nasal attic drain into the orbit where they anastomose with the perivascular, perineural and peribulbar spaces; anatomical points which should open our eyes to the fact that the upper pneumatic cells of the nose and the important soft tissues of the orbit are intimately and inseparably associated.

Kuhnt says: "The orbit is surrounded on three sides by accessory nasal cavities lined with mucous membrane, the veins from which empty directly into the ophthalmic veins."

Since this paper deals more particularly with the sphenoidal cell in relation to optic neuritis, it will do no harm to make a tour of inspection of this cavity. After considerable difficulty we find the narrow opening leading into the cavity of the

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\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.



sphenoidal body. We crawl through the small entrance and drop inside. It is dark, stuffy and quite unattractive. The single window admits of no air current, there being no counter-opening. Its irregular walls are lined with glistening, thin and pale mucous membrane, which is almost entirely devoid of glands. We hear the ominous and rhythmical rush of arterial blood as it courses through the large vessels lying just beyond the confines of the cavity. We note the low musical whirr of venous blood circulating through the ophthalmic vein and the cavernous sinus. The quiet nasal respiration of the Gulliver whose sphenoidal caves we Lilliputs are exploring, sounds like the mighty roar of a tornado. The cavity echoes and augments the sound. The guide points to the irregular ceiling and tells us that just on the other side of the thin covering of the sphenoidal cell lies the optic chiasm. He touches the outer wall near the ceiling with his Alpine stick and announces that the optic foramen is there, and that the optic nerve at that point lies against the cell-wall itself. He tells us that the wall here is exceedingly thin and in some cases membranous. He warns us not to lean on the outer wall, for we might compress the ophthalmic vein or tickle the fifth nerve, or irritate the third, fourth or sixth nerves which pass just on the outside.

We perceive at once that if this gloomy, stuffy, illy-ventilated cell should become infected with pus-formers, resulting in abscess, or even if it became the seat of a less violent but infective inflammation, the important outlying ocular structures would be in real jeopardy. In the former case the lateral wall of the cell might become swollen or even bulging. Perhaps there would be more or less pinching of the nerves and vessels passing through the optic foramen and the sphenoidal fissure. A neuritis from compression would result. In the latter case some of the infection existing in the stroma of the mucous membrane lining the ethmoidal and sphenoidal cells might be taken up by the venous and lymph circulation to be carried into the larger channels of the orbit. This would mean infection and swelling of the orbital lymph spaces, sluggish circulation in those spaces and even stasis, and the subdural lymph space of the optic nerve would, in some cases at least, become affected. Thus a true interstitial optic neuritis

might result. Pain in and around the eye would in many cases be a prominent symptom, due either to direct compression of the ophthalmic division of the fifth nerve where it passes through the sphenoidal fissure, or reflexly from the sinusitis via the anterior and posterior ethmoidal nerves—branches of the ophthalmic. Septic matter taken up by an open vein may be carried from the nose into the veins of the orbit, where in certain cases septic thrombosis would result. Hajek points out that even the cavernous sinus has become infected from the upper nasal veins. Thrombosis of the orbital veins has resulted after nasal operations where sepsis of the wound occurred and even where the galvano-cautery was used on the turbinates.

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We all know how common acute coryza is. We recognize and expect it to be an accompaniment of grip, measles, whooping-cough, etc. We are familiar from personal experience with the distressing nasal and head symptoms, and often remark on the profuse rhinorrhœa that indicates the “breaking up” of the cold.

Modern authorities claim that sinusitis very frequently exists in those cases. The causes for acute sinusitis mentioned in the new text-books (Shurly, L. Brown, P. Brown, Kyle, *et al.*) are influenza, the acute exanthemata, infection from nasal operations, the retention of secretions from nasal packings, etc. Grip is conceded by all to be the most potent cause. Frankel, of Hamburg, found acute sinusitis to be present in *all* of one hundred and forty-six patients dead from grip. In not a single case was sinusitis diagnosed. Weichselbaum, of Vienna, performed many post-mortem examinations on patients dead from grip and makes the statement that 90 per cent. had sinusitis.

It is fortunate that the front wall of the sphenoidal cavity is usually the thinnest and gives way first, otherwise acute retrobulbar neuritis and blindness would be much more common.

I leave it to an abler pen than mine to tell us how to make a positive diagnosis of *acute* sinusitis. I frankly admit that I am anxious and willing to be taught both how to recognize it and how to cure it.

At any rate we must concede that acute empyema of the ethmoidal and sphenoidal cells does occur as well as necrosing ethmo-sphenoiditis, and from that concession we can safely argue that we have a well-founded cause for acute retrobulbar neuritis and all the alarming accompaniments.

If rhinologists will grant that pus confined within the cells of the ethmoid and sphenoid would cause inflammation, thickening and bulging of their orbital walls or infection of their lymph spaces, oculists will, I think, be able to produce a *causus morbi* for certain curious and acute retrobulbar inflammations affecting the optic, the fifth and sometimes the third and sixth nerves.

In case of erosion, thickening or bulging of the lateral wall of the sphenoidal cavity, in certain cases we would have at first compression of the optic nerve and some choking of its foramental part. This would be resented by the soft and easily insulted nerve fibers and their fine capillaries and lymph spaces, and the result would soon be a true interstitial neuritis with some distention of the vaginal sheath in front of the optic foramen (and not behind it in the chiasm). The neuritis would extend toward the ball, since it would be the distal end which would suffer from such strangulation. In the phenomenon which follows putting a tight rubber band around the finger, all the swelling is on the distal side of the rubber, and so in case of strangulation of the optic nerve at the apex the inflammation would extend forwards, thus producing a monocular optic neuritis. Other stages would follow in rapid succession—transudation, plastic exudation, complete arrest of function, and finally atrophy and fibrosis, which would obliterate the finer markings of the nerve, destroying endoneurium, perineurium, and neuraxons alike.

The question might here be asked: "In acute retrobulbar neuritis, is there a true choked disc?" The answer is, "No, the artery and vein of the disc enter the optic nerve only about 10 or 15 mm. behind the globe; at that point there is a free enough inlet for arterial blood and an outlet for venous blood to prevent that." The throttling of the optic nerve is at the foramen, an inch farther back.

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A certain quiet type of monocular optic neuritis we all have seen over and over again. Hitherto no explanation of the disease has been offered. We note the presence of a distinct exudative neuro-retinitis in one eye only and the entire absence of a systemic cause. The subjects are usually under twenty-five years of age and in apparently robust health. The disease is "quiet" in that there is usually no involvement of the fifth nerve and the amblyopia is gradual and never complete. The vision falls to  $\frac{20}{200}$  or less, and then there is a clearing up of the optic nerve exudate and with it a gradual return of sight. Usually there is no atrophy of the disc resulting, and only a slight lack of definition at its margin or a small bunch of organized lymph along one or two of the vessels coming out of the disc for a short distance beyond its border. In the four cases of this class which I had during the past year the patients had had a short time before a mild attack of "cold in the head on that side," or of grip. Their only symptom was foggy vision. They all recovered perfect sight by the usual treatment. In these cases a balloon swelling of the turbinates, which disappeared of its own accord after the eye recovered, was all that was noted in the nose. The writer does not wish to claim that every one-eyed optic neuritis is of nasal origin; he merely wishes to give the nose the amount of consideration which its intimate relationship with the nerve and perineural structures seems to demand.

We may have three distinct types of optic neuritis from nasal origin:

(a) *Acute fulminating retrobulbar neuritis*, due to mechanical compression of the optic and ophthalmic divisions of the fifth nerve from swelling of the lateral walls of the sphenoidal cavity. This form results in profound rapid amaurosis associated with violent cyclonic neuralgic pain.

(b) *Acute retrobulbar perineuritis and optic leptomeningitis*, due to infection (?) carried from the nose via the lymph channels. Here there is no compression neuritis like in the foregoing class, but there is infection and swelling of the sub-vaginal and perineural lymph spaces. It is manifest that this class is free from pain and that the amaurosis is much less marked, although the ophthalmoscopic picture is much the same as in class "a."

(c) *Retrobulbar optic neuritis secondary to septic venous thrombosis*, the origin of which is intra-nasal in a vast majority of cases.

In the acute fulminating retrobulbar neuritis the symptoms are profound and unmistakable. The patient first notices twinges of pain in eyeball, brow and temple. Pain soon becomes unbearable in some cases. The eye becomes slightly congested, suffused with tears, rotation painful, pupil slightly dilated and very sluggish. Tension normal, vision very bad, soon becoming entirely or nearly abolished. At first only slight hyperæmia of the optic disc is noticed, soon followed by marginal indistinctness, due to filmy exudate. Veins now become overfilled but not tortuous; optic nerve slightly swollen, generally less than 1 D. The exudate extends a short distance into the retina surrounding the nerve-head. The disease runs a very acute course. The pain soon subsides; the vision begins to return in from three to ten days after the onset; the exudate disappears. Daily tests of the visual field show rapid return of whole segments. The center of the field is slow in returning; in some cases central scotoma remains permanently. The optic nerve now becomes distinctly atrophic, especially on the temporal side of the disc, representing the papillö-macular bundle of fibers; the blood-vessels are not much, if any, reduced, and finally in favorable cases there is complete restoration of sight. The above symptoms are culled from my notes of a case I had nine months ago in which necrosing ethmoiditis and sphenoiditis were positively present. The optic nerve atrophy, which is usually but partial, remains unchanged for the balance of the patient's life.

Deyl (in Norris and Oliver) states: "Acute retrobulbar neuritis is characterized by its sudden and fulminating inception, generally accompanied by severe pain in eye, back of eye, forehead and head; rapid and marked disturbance of vision amounting to blindness in from one to several days and sometimes in a few hours," but he makes no mention of a possible nasal origin, excepting that it is due to "influenza" in many cases.

Elschnig says: "The lesion is primary interstitial neuritis—catching cold the only assignable cause."

De Lapersonne (*Knapp's Archives*, 1900) declares optic

neuritis of this kind to be due to ethmoid and sphenoid disease. He states that the eye symptoms draw our attention to the sinus disease that had been overlooked. He makes use of the following words: "The most frequent ocular symptoms of sphenoiditis is a retrobulbar neuritis *localized in the optic canal.*" He reported three cases of unilateral acute retrobulbar neuritis which led to the discovery of extensive pathological changes in sphenoidal and posterior ethmoidal cells.

Berger says: "Optic neuritis may develop from acute infective disease in the nasal accessory sinuses."

Hansell, of Philadelphia (*Med. and Surg. Rep.*, 1896), reports a case of blindness from ethmoidal and sphenoidal disease. The nasal disease was distinctly present and the diagnosis seemed perfectly clear.

Hajek, in his classical work on the nose, states: "If the bony framework of the sphenoidal cell is involved from sinusitis, serious complications result, rapid blindness—monocular, has been observed many times. The cause is either pressure against the optic nerve at its orbital entrance, or perineuritis, each meaning that the bony wall has been eroded."

Dr. C. R. Holmes, of this city, reported in *Knapp's Archives of Ophthalmology*, 1896, a clear case of acute retrobulbar neuritis, due to sphenoiditis, presenting all the classical symptoms and recovering after a considerable quantity of pus had been liberated from the sinus. He illustrated his complete report by anatomical drawings from sections he had made. I had the pleasure and opportunity of working with him throughout that case, which I believe was the first of its kind published, demonstrated and explained. But if you will scan the literature from the time Helmholtz gave us the ophthalmoscope down to the present, you will find reported dozens and dozens of cases of acute blindness in one eye associated with the ocular symptoms mentioned, and in a very few you will find mention made of the nose. This statement stands true up to the present day. The object of my essay is to call attention to the fact that the nose is usually not thought of in this disease. The unfortunate circumstance in the make-up of this naso-ocular disease is the fact that rhinoscopy usually fails to reveal more than a slight and apparently simple acute boggy swelling of the turbinates. The ocular symptoms entirely overshadow the nasal.



In the diagnosis of acute retrobulbar neuritis we would have to exclude all other diseases and conditions, such as glaucoma, orbital neoplasms, cerebral syphilis, brain tumors and abscesses, poisoning from lead, quinine, tobacco, stramonium, iodoform and the other toxic substances, diabetes, albuminuria, malaria, anæmia, chlorosis, specific neuroretinitis, embolism of the central artery, and hysterical amblyopia. In the presence of any of these in a given case the diagnosis of optic neuritis from endorhinitis would hardly stand.

The striking features of acute fulminating retrobulbar neuritis from nasal origin are:

(a) The rapid onset, course, duration and termination as compared with other forms of optic neuritis.

(b) The presence of excruciating pain, involving most all of the branches of the first division of the fifth nerve.

(c) The complete loss of vision in a short space of time after the onset (from a few hours to a few days), and the rapid return of fair vision in most of the cases with, however, more or less optic nerve atrophy and frequently with absolute or relative central scotoma.

(d) The absence in many cases of positive evidence within the nose that the trouble is of nasal origin.

The treatment will suggest itself. Inasmuch as blood-letting is indicated anyway, I would not hesitate to remove all or a part of the middle turbinated bone and at least try to get into the sphenoidal cavity, but would be heedful of the dangers. I think the middle and superior straits of the nose are the ideal places from which to draw blood in this class of cases, because the opening of blood-vessels supplying the nasal attic would have a direct influence on lessening the orbital congestion.

The nasal operation affords a two-fold purpose—blood-letting and drainage.

# MEDICAL SOCIETIES.

## PROCEEDINGS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.\*

*Thursday, March 14th, 1901.*

G. ANDERSON CRITCHETT, M.A., F.R.C.S.E., President,  
in the Chair.

### THE EVOLUTION OF THE COLOR SENSE.

DR. F. W. EDRIDGE-GREEN read a paper on this subject. He said the facts of color blindness threw a good deal of light on the evolution of the color sense. Cases of color blindness might be divided into two classes quite separate and distinct from each other, though both might be present in the same person. In the first class there was light as well as color loss. In the second class the perception of light was the same as in the normal sighted. Many color-blind persons belonging to this class had a light perception much more acute than was found with most persons having a normal color perception. Color-blind individuals belonging to this class could be arranged in a series. At one end of this series were the normal sighted, and at the other end the totally color blind. The author had classified them in accordance with the number of colors which they saw in the spectrum, as pentachromic, tetrachromic, trichromic, dichromic, and monochromic. All the facts which could be gained from the study of museums and literature pointed to the view that the sense of light was developed first, and then the sense of color, those waves which differed from each other most physically, being first perceived as different—namely, red and violet. It was obvious that if a certain portion of the visual center were set apart for the perception of color, when it was very small and ill-developed, it would only be able to perceive differences of considerable magnitude; but as more cells were added to the center greater and greater power of perceiving differences arose. Each cerebral cell might at first have been connected with many optic nerve

\*British Medical Journal.

fibers, and the number gradually diminished as evolution proceeded. It need only be assumed that the nerve impulses differed in quality, for instance, in wave length, just as the waves of light differed physically in wave length, and that when a nerve impulse of a certain character acted on a cerebral cell it gave rise to a corresponding sensation of color, within the range of perceiving differences possessed by that cell. It was obvious that if the nerve impulses did not differ in quality one could never have a sensation of color. The spectrum was, therefore, first seen as grey, then with a tinge of red at one end, and violet at the other. As the color sense developed it was not necessary that the rays should be so far apart before a difference was seen, and so the grey band gradually diminished until it entirely disappeared and the two colors met in the center of the spectrum. A third color, green, then appeared at the central point. Then yellow appeared, making four colors; then blue, making five; and finally orange, making the normal six. In some persons evolution had proceeded further, and seven colors were seen, there being two colors between the green and the violet, instead of one. It was found that paintings were first monochromatic, then red and violet were used as colors, then green, then yellow, and then blue. Homer's color vision was of the degree just preceding total color blindness. The description by different authors of the rainbow as having one, two, three, four, five, six, or seven colors was very characteristic. These facts showed that color blindness was only an example of an earlier state in the development of the color-perceiving center.

PERITOMY IN EPISCLERITIS, IRITIS, HERPES OPHTHALMICUS,  
AND PURULENT OPHTHALMIA.

MR. T. PRIDGIN TEALE read this paper. He traced shortly the history of the operation, which was modified from syndectomy, in which a portion of the conjunctiva was excised. This, however, was found unnecessary, and if a greater effect was desired than that produced by cutting the conjunctiva round close to the cornea, it could be obtained by making several radial incisions in it. Mr. Hewetson, of Leeds, drew attention to the value of the operation in interstitial keratitis which the author fully endorsed. He wished to point out its great value



in the other diseases mentioned, and especially in episcleritis, in which it was most marked, the pain being greatly modified. The same was noticed in obstinate cases of iritis from any cause. In a case of subacute purulent ophthalmia with ulceration of the cornea in a child a complete cure resulted. He had also performed the operation in a case of irido-cyclitis with increased tension where there were reasons for not performing iridectomy. In this case the operation reduced the tension to normal, and gave great relief, though it did not cure the disease.

THE PRESIDENT said he usually removed a small ring of conjunctiva, and often with excellent results.

MR. CARTWRIGHT thought the good effect produced was by its acting as a counter-irritant, and not in a mechanical manner.

MR. SECKER WALKER had seen good results in interstitial keratitis, and also in iritis, and he looked upon its action as being similar to that of a leech.

MR. HERN said he removed a piece of conjunctiva, and curetted round the wound. He felt it was a much-neglected operation.

Remarks were also made by MESSRS. MARCUS GUNN, JOHN-SON TAYLOR, and CROPPER.

#### MEMBRANOUS CONJUNCTIVITIS.

MR. J. F. BULLAR described a case. The patient was a child, who was born on October 28, 1900, and who was quite well when seen on November 5th. On November 7th the right eye was noticed to be affected, and was treated by the nurse until November 11th, when it became much worse, and the doctor was called in. When Mr. Bullar first saw it the lids were very much swollen, a yellowish membrane was present, which stripped off easily and left a slightly bleeding surface. Nitrate of silver gr. ij ad ʒj was used. The eye got better, the chemosis subsided, leaving a small central ulcer of the cornea. Membrane was also noticed on the right side of the nose and fauces, which extended. The child died in convulsions on November 20th. There was no diphtheria in the neighborhood, and the membrane was not examined.

MR. SYDNEY STEPHENSON made it a rule to use antitoxin

on first seeing a case, without waiting to verify the diagnosis bacteriologically.

THE PRESIDENT said Mr. Tweedy, who had had great experience in these cases, looked upon quinine as being a specific in diphtherial conjunctivitis, and he had himself seen great benefit arise therefrom.

MR. LANG said that Mr. Tweedy's observations had been made long before antitoxin was known, and he thought it should not go forth as the opinion of the Society that his view was still held.

MR. DEVEREUX MARSHALL said he should not think of waiting to conduct a bacteriological examination (though this would not take long), but in a case of supposed diphtherial conjunctivitis he should at once inject antitoxin, which in no case could do harm, and in a true case the sooner it was done the better. With regard to the local application of quinine, he strongly approved of it, though he had not seen its use followed by such excellent results as those obtained by Mr. Tweedy.

#### OTHER PAPERS.

Two papers by MAJOR H. HERBERT, I.M.S., were taken as read. The first was on hypertrophy and ossification of the tarsus. A male Hindoo, aged 33, had considerable enlargement of both upper tarsi, especially towards the outer ends, without much thickening. On the left side it was fibrous, but on the right there was considerable bone formation, which was fairly dense. A piece of necrosed bone exposed on the conjunctival surface of the lid kept up irritation, for which the patient sought relief.

The other paper was a note on the surface of the normal cornea. Over thirty normal corneæ were examined in Bombay, all of which showed more or less epithelial defect when the surface was partially dried by exposure, the upper lid being elevated from the eyeball, and local illumination and the corneal loupe being used. In some cases there were only one or two pits seen, in others many closely-set pits, in others grooves added, in others one or more large depressed patches. The depressions were all sharply defined, and their floors stippled owing to the irregular surface presented by the deeper

epithelial cells. They usually began to appear within half or one minute, sometimes within a few seconds, but were generally not fully shown for two or three minutes. Repeated exposures and the instillation of cocaine sometimes caused an extensive irregular superficial exfoliation of the epithelium, which partly obscured and altered the original picture. The patients examined were all native, mostly adults. Slight conjunctivitis and localized keratitis tended to exaggerate these physiological defects. In superficial punctate keratitis some of the points stained with fluoresceine appeared depressed on drying and had to be distinguished from the physiological pits above described, possibly to be seen on the same cornea.

#### CARD SPECIMENS.

The following card specimens were shown: Mr. Hart-ridge: (1) A Capsulotomy knife; (2) Case of Central Choroiditis Simulating a Neoplasm, which had been watched for fourteen years. Mr. H. Secker Walker: A Diagrammatic Model to Assist in the Teaching of Refraction. Mr. J. H. Tomlinson: A New Color Perimeter. Mr. J. H. Parsons: Coloboma of the Optic Nerve. Mr. G. W. Roll: Immobility of the Pupils with Fundus Changes. Mr. P. Flemming: Section Showing Dilated Nerve Fibers in the Retina. Mr. Doyne: A Simple Form of Ophthalmoscope. Mr. Work Dodd: A Case of High Hypermetropia.

THE following officers were elected at the sixth annual meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, April 11th and 12th: Dr. C. R. Holmes, Cincinnati, Ohio, President; Dr. W. L. Dayton, Lincoln, Neb., First Vice-President; Dr. J. O. Stillson, Indianapolis, Ind., Second Vice-President; Dr. H. W. Loeb, St. Louis, Mo., Third Vice-President; Dr. O. J. Stein, 100 State St., Chicago, Treasurer; Dr. Wm. L. Ballenger, 100 State St., Chicago, Secretary. At the meeting in Cincinnati the scientific program was of very high grade. Forty new members were elected. The next meeting will be held in Chicago, April 10, 11 and 12, 1902.



## ABSTRACTS FROM MEDICAL LITERATURE.

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By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### EXPERIENCES IN THE USE OF HOMATROPINE AS A CYCLOPLEGIC.

Edward Jackson (*Annals of Ophthalmology*, January, 1901) considers homatropine, if properly used, a reliable and satisfactory cycloplegic, as reliable in children as in adults. His favorite method of using it is to instill one drop of a 2.5 or 3 per cent. solution every five minutes, five or six times. It rarely produces any toxic symptoms.

### THE USE AND ABUSE OF SPECTACLES.

Hasket Derby (*The Boston Medical and Surgical Journal*, February 28, 1901) thinks spectacles are frequently prescribed when they are not absolutely necessary. In moderate degrees of hypermetropia it is a mistake to use glasses for anything but close work, for the patient, through constant use, becomes dependent upon them. In myopia glasses are probably too little worn, but great care must be exercised in treatment and no glass should be ordered until a thorough investigation of the history of the patient, the family tendencies, the acuteness of vision, and the condition of the interior of the eye has been made. As to astigmatism, so much relief has been given by glasses that the tendency is to prescribe them when they are not really needed. The author believes they can be dispensed with in cases in which vision, either with or without a spherical glass, is found equal. As to heterophoria, it is often cured by an improved general condition without the use of prisms.

### L'ACCOMMODATION DANS L'OEIL HUMAIN.

Wilhelm Schoen (*Archives d'Ophthalmologie*, February, 1901) attacks the Helmholtz theory of accommodation. He says it is not sufficient from an anatomical, physiological or pathological point of view, and he presents a new one in place

of it. As everybody knows, in accommodation for the near, according to Helmholtz, there is a relaxation of the zonule, and for the far it is tense. Schoen repeats the experiments:

First, as to the movements of the ciliary processes.

Second, to the movement of the Purkinje images.

Third, the difference and the change of tension.

Schoen says that the test as to the mechanism of the accommodation is extremely difficult and always susceptible of an equivocal interpretation, although the anatomy does not exhibit difficulties. There is great diversity of opinion as to the course of the zonular fibers, yet the principal facts are now well established, and we understand the zonule perfectly. The course of the fibrils is to-day well known.

1. Each zonular fiber makes a part of a cell of the ciliary epithelium or of a cell equivalent to that of the system of nutrition of the retina.

2. In fact, all the cells of the ciliary epithelium and of the zonular fibers represent a kind of prolongation of the retina, which is a prolongation up to the capsule of the crystalline lens.

3. In front of the ciliary process there is an interlacing of the zonular fibers.

4. All the zonular fibers which are attached to the anterior capsule of the crystalline lens take their origin from the margin of the retina and the posterior part of the ciliary epithelium *passing behind the ciliary processes, without being connected with them.*

5. The fibers springing from the anterior part of the epithelium are attached to the posterior capsule much more rarely than the others.

6. The tendons of the meridional fibers of the ciliary muscle are situated in the external layers of the choroid, without having any organic communication with the internal layers of the choroid and still less with the retinal margin of the ciliary epithelium, where the zonular fibers have their origin.

7. Never, or scarcely ever, is the lens placed symmetrically at the angles of the ciliary body.

8. From the original retinal margin up to the angle of the ciliary body and farther beyond, the limiting membrane loses itself between the two layers of the ciliary epithelium of the

pigment. The adherence between the two layers is so intimate that they cannot be separated without injury, but when that limit is reached the retina is easily detached from the choroid, because between them is found the space of the primitive ocular vesicle.

The theory of Helmholtz, continues Professor Schoen, is a simple hypothesis, but it is shown to be defective by the anatomy in three ways:

First, the circular fibers of the ciliary muscle have not yet been discovered. The theory does not apply to the meridional fibers.

Second, his theory supposes that the meridional fibers pass in front of the posterior extremities of the zonule, which is impossible, because these fibers do not attach themselves to the point of origin of the zonule.

Third, the conception of Helmholtz as to the zonule is completely erroneous. He describes one membranous fold, which attaches itself to the capsule in a marvellously sinuous way. Schoen claims that the theory of Helmholtz is also opposed to physical laws. Helmholtz claims that the tension of the zonule keeps the crystalline lens flattened.

The posterior extremities of the zonule are not fixed to the tissues of the sclerotic like cramp-irons in the walls of a house. Again, the fibrous membrane does not possess the rigidity of the capsule, and the extremities in question do not touch the sclerotic at all. In reality it is the tension of the vitreous body that holds the zonule and prevents it from plating and from relaxing. According to the theory of Helmholtz, the tension of the vitreous body during the absence of accommodation should be greater than that of the anterior chamber. Again, the theory of Helmholtz does not allow us to explain in the act of accommodation its effect—that is to say, the increase of the tension in the vitreous body over that of the anterior chamber, which should cease. The contents do not lose in mass, and the circumference does not increase the traction carrying forward the posterior surface of the zonule. It cannot diminish the tension of the vitreous body or relax the zonule. It would rather augment the pressure of the vitreous body on the posterior surface of the crystalline and of



the zonule, as much as the tension of the posterior of the crystalline is not diminished.

According to the theory of Professor Schoen the mechanism is entirely simple. He has already explained that the zonule represents a prolongation of the retina. The external capsule of the crystalline lens, the zonule and the retina constitute the envelope of a ball in which is contained the vitreous body and the crystalline. The meshes of the zonule are closed by the hyaloid membrane. This ball—which may be compared to an India rubber ball filled with a liquid—is surrounded by the fibers of the ciliary muscle and its processes, except at the anterior part. If one presses between the two hands a rubber ball and leaves free only a small part in exercising a concentric pressure the free part will be pushed forward. This apparatus can be still more exactly imitated by holding the ball between the two palms of the hands in such a manner that the portion not grasped will represent the ciliary processes. The contraction of the circular fibers presses the ciliary process against the circumference of the ball, the zonule, which makes the free part project—that is to say, the anterior capsule against which the crystalline is situated.

The meridional fibers prevent the ciliary processes from gliding on in advance. This suffices for the physiological accommodation. In the forced accommodation the meridional fibers press the ball, but in general their only function is to support the tension of the interior of the eye. Besides this, they furnish a tonic innervation. When the eye is healthy the intra-ocular pressure is not exercised on the sclerotic. Schoen claims to have simplified the model of the mechanism of accommodation. The great difficulty to be overcome was to reproduce the hydrostatic action of the vitreous body.

The details of the apparatus are easily understood. The posterior fibers of the zonule are relaxed during accommodation. After having recovered their tension until the crystalline has returned to the state of repose, they unite in smoothing out the crystalline.

*The Theory of Tscherning and the Anatomy.*—Tscherning admits with Schoen the increase of the tension of the zonule in accommodation for the near, but he gives a different explanation. He supposes a traction from behind exercised

by the ciliary processes. That proposition is contradicted by the anatomy, because the ciliary processes have not the least connection with the zonular anterior fibres, and they are incapable of exercising such attraction. We cannot apply this theory to the natural condition where the posterior extremity of the zonule fixed by the cramping irons is carried outwards.

As has been said, all experimentation on the mechanism of the accommodation is extremely difficult. It is almost impossible to obtain an immobility of the eye sufficient to destroy the influence of the pulse and the respiration. The more so, because the small variations in convergence do not allow the production of the accommodation between them. On the other hand, the things that one ought to observe—that is to say, the movements of the images of Purkinje or of the points of the ciliary processes—are extremely small. It is readily understood that the magnitude of the instruments used and the manipulations make considerable errors possible. This being so, one is not astonished that two scientists of equal merit, making the same experiments, come to diametrically opposite conclusions. As soon as the accommodation commences to act, the ciliary processes approach the crystalline, according to Becker, but recede, if one is to believe Coccus. That is then in reality an effect of perspective. Then Cramer admits that during the accommodation the image of the anterior surface of the crystalline diminishes and is further forward, an opinion adopted by nearly all the others. Monoyer proves that the opinion is not exact. If the image seen on the side appears to advance and that of the other goes behind, that is then also an affair of perception. The position of the crystalline axis has changed, but the image has not advanced. Very lately Tscherning has modified the opinion which he first announced. Then he thought he had found a different tension in the anterior chamber and in the vitreous body. My experience agrees with that of Hess, who says that it is impossible to prove a difference of tension between these two spaces during the accommodation. Undoubtedly these experiments may be modified more or less, but the results given by them do not disagree with physical or anatomical conditions. Certainly one may doubt the result of the expe-

rimerter who asserts that the refraction and tension of the eye are not changed after death, seeing that one is able without difficulty to perform an operation for cataract on the eye of a cadaver, with such an appearance of reality, notwithstanding it has lost its resisting power. Against the assertion advanced in the second place, that the refraction is augmented after the section of the zonule fibers, one may observe that the operation is so great that it is not possible to know anything of the physiological condition, and that it is certainly impossible to arrive at a sufficiently exact conclusion.

The results of all experiments mentioned up to this point are claimed to be compatible with Schoen's theory, and perhaps also with that of Helmholtz. The action of the anatomical apparatus is such that it should be accompanied by a symmetrical oscillation of the crystalline, and experience has proved its existence. The play of the accommodative apparatus, according to our theory, is always in intimate dependence upon the ciliary process, which are comparable to the ends of the fingers. That which allows this change, not only in the direction of the axis and the place and the form of the crystalline, as for example, the smoothing out of the lateral parts, has been demonstrated by Tscherning. The conception of a visual line is useful for the dioptric calculation, but it cannot be considered as an anatomical reality. It is not probable that the position of that line remains the same during accommodation. That oscillation compatible with an increase in the tension of the zonule is produced by the tremulousness which usually accompanies the forced contraction of a muscle. This should not be confounded with the oscillation of the crystalline, which is observed in the subluxation, and does not at all signify a relaxation of the suspensory ligament. Helmholtz did not seek to prove the truth of his hypothesis by these experiments. One is forced, therefore, to improve and to refute Schoen's theory at the same blow, without embarrassing the others in their anatomical objections. The experiments undertaken to sustain a preconceived opinion are always in danger of being badly conducted. In this case is the attempt to prove that the zonule is held in a state of repose and relaxation during accommodation. Hess admits, like the present writer, that there is no difference during ac-



accommodation between the tension of the vitreous body and that of the anterior chamber, undoubtedly because he believes that state would be in accord with the theory of Helmholtz. This is an error, for that theory demands in advance of accommodation, a tension stronger than that of the vitreous body and during accommodation augmentation of the tension in the anterior chamber or diminution of the tension of the vitreous body, until equilibrium exists between them. Since experience goes to prove that the crystalline descends in following the law of gravitation during accommodation, there will be many objections to the equivocal character of such an experience, for example, the rotation of the eye around the visual line joined to the movement of the head; but I do not insist, because this experience proves exactly the contrary to that which is deduced by M. Hess. The accommodation, in the sense of the theory of Helmholtz, as we have said, cannot press the vitreous body more strongly on the posterior surface of the crystalline and of the zonule. The tension will be consequently augmented and not decreased. The crystalline will then be made consequently more strictly immovable than ever. On the other hand, the idea of downward movement is not in want of accord with Schoen's theory, because as in our ball mentioned above, the crystalline of the vitreous body reforms and constitutes the kernel or nucleus of the eye. It becomes more contracted in the state of accommodation than in that of repose, and encounters for that reason a less difficulty in sinking down than in the first or second case, and in short, Schoen insists on the difference between the theory of Tscherning and his, that his antagonists are constantly contradicted. They are not able to relieve themselves of an error many times repeated, that the crystalline will be attached to the sclerotic in a certain manner like the lining to a stiff box. That admitted, Schoen claims, "the attachment should be more close during accommodation than during repose." The theory of Helmholtz, accepting one or the other alternative, remains Schoen's theory or that of Tscherning. But there exists a third alternative represented by Schoen's theory. According to the theory of Tscherning, the contact should be more intimate during the act of accommodation. That theory rests on the depression of the crystalline under

the influence of its weight. That observation is exact, and Schoen says that his theory is not affected by it.—*The Post-Graduate*, April, 1901.

NOTE ON THE PECULIAR NYSTAGMUS OF SPASMUS NUTANS  
IN INFANTS.

John Thomson (*British Medical Journal*, March 30, 1901) says: In most cases of head-shaking, or spasmus nutans, in young children there is nystagmus. The close relation between this symptom and the head movements has often been pointed out; but attention seems never to have been called to some essential particulars in which it differs from all other forms of nystagmus.

Ordinary horizontal nystagmus is, of course, conjugate in its character, the antero-posterior axes of the two eyes remaining parallel to one another all the time. In this form, however, when the movements are bilateral and horizontal, the eyes incline alternately towards and away from one another; in other words, it is convergent nystagmus. In most of the cases—perhaps in as many as two-thirds—the shaking of the eyeballs is so small in extent and so rapid that the unaided eye cannot determine the type. In those, however, in which the movements are wider and slower than usual their convergent character can be made out with ease and certainty.

The writer has for years been aware of this peculiarity, but has only recently had its unique nature and importance pointed out to him by Dr. W. G. Sym. The existence of a convergent form of nystagmus is not generally recognized, even in large and recent works of ophthalmology, nor is any reference to it to be found in books on the diseases of children.

The association of this peculiar type of nystagmus with head-shaking is not without interest in connection with the etiology of that condition. Although, as has been pointed out elsewhere,<sup>1</sup> rickets, deficient daylight and general weak health are important factors in its causation, spasmus nutans in infants is, at bottom, a co-ordination-neurosis. It develops during the months in which the infant is slowly learning to co-ordinate the movements of his eyes with those of his head,

<sup>1</sup>On the Etiology of Head-Shaking with Nystagmus (Spasmus Nutans) in Infants, Dr. A. Jacobi's *Festschrift*, May, 1900; and *Scot. Med. and Surg. Journ.*, July, 1900.

and it affects the muscles which have to do with these movements. Were the nystagmus which is present of the conjugate type it would not be in keeping with the other symptoms, because the conjugate movements of the eyes are of a different order altogether from those of the head-shaking. They are not movements acquired in infancy, but are in full play when the child is born; and they are not purposive in character. Those, however, concerned in the convergent type are distinctly purposive, and are gradually acquired and perfected by practice during infancy.

In those cases of spasmus nutans in which the nystagmus is rotatory, there is likewise a peculiarity in the extent and character of the movements. In the ordinary rotatory nystagmus seen under other circumstances, the movement consists of a simple rotation of the globe round its antero-posterior axis, the central point of the cornea remaining practically unaltered in position. In the rotatory nystagmus of head-shaking, however, the eye movements are more of the nature of circumduction than pure rotation. In them the central point of the cornea passes through an ellipse or some other more or less irregular rounded figure.

In conclusion, it may be pointed out that there are some other ways in which the nystagmus of spasmus nutans differs from the ordinary form. For example, it is often unilateral, instead of being very rarely so; and it is often vertical or rotatory, instead of being nearly always horizontal. The direction of the movements, also, is occasionally different in the two eyes—that is, vertical or rotatory in one eye, and horizontal (at the same time) in the other, this state of matters being never seen in ordinary nystagmus. Lastly, it is invariably recovered from within a certain number of months.

#### CAN INTERSTITIAL KERATITIS BE PREVENTED IN THE OFFSPRING OF SYPHILITICS?

Peter A. Callan (*American Gynecological and Obstetrical Journal*, February, 1901) assumes that the majority of cases are due to hereditary syphilis, and the question may arise as to whether it can be avoided. The authors conclusions are: "The offspring of syphilitics show the evidences of the inherited taint in only a slight percentage of the cases; that is,



if we except those children under five years of age. Only a slight percentage of such children develop interstitial keratitis. When the disease attacks one eye, all our treatment appears to be powerless to prevent its development in the fellow eye. We may possibly delay, but we can not prevent, the outbreak of interstitial keratitis in certain cases.”

NOTES ON THE BACTERIOLOGY OF THE CONJUNCTIVAL SAC  
AND ITS BEARING ON SURGICAL PROCEDURE.

P. Chalmers Jackson (*Annals of Ophthalmology*, January, 1901) examined the secretion from fifty healthy conjunctivæ, thirteen of which were found to be sterile. In the remainder he found the following bacteria: *Staphylococcus pyogenes aureus*, *staphylococcus pyogenes albus*, *staphylococcus epidermidis albus*, *aerobacillus citreus*, *xerosis bacillus*, *bacillus coli communis*, and *bacillus subtilis*.

The author's conclusions are as follows:

1. That the pyogenic or pus-producing organisms are found in the normal conjunctival secretion, although probably in attenuated form.

2. That under normal conditions they do not propagate.

3. That the eye under normal conditions is bountifully supplied with means of antagonizing bacterial growth.

4. That diminished resistance, such as occurs in inflammations of the membrane in operative interference, alters the nutritive nature of the secretion and probably converts it into a more suitable medium for germ life.

5. That the secretion of the eye is not an antiseptic in itself.

6. That strong antiseptics in the conjunctival sac diminish the resistance and place the eye on a lower plane to resist germ invasion.

7. That much attention should be given to washing out residual bacteria prior to operation.

8. That as much care should be taken in regard to antiseptics and cleanliness in the external preparation of both patient and operator as is adopted by the general surgeon of modern times, as, while the danger of suppuration is more remote, the result if it occurs is more disastrous.

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## ORIGINAL ARTICLES.

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### DISCUSSION ON DR. DERRICK T. VAIL'S PAPER ON "OPTIC NEURITIS RESULTING FROM INTRA-NASAL DISEASES."

DR. J. O. STILLSON, Indianapolis.—I think this is a very important paper, and it is certainly worthy of our serious consideration, because it opens up the question of the relation of the two sides of the fundus, as between the diseases of the eye and the diseases of the nose. We all know that we owe a certain amount of regard to each other in our different fields of labor; the eye class is usually attended by men who limit their studies to certain fields of observation where they are capable of doing the most good. Of course, an oculist is busy with his line of work and would be more liable to deficiencies in regard to the nose and other parts of the body. We can not cover the whole field. We can not spend our whole time on the anatomy of the entire human body, and the public do not expect it of us. Consultations never hurt and they often help. I think the benefit of counsel is the patient's due, and I think those who refuse to call counsel lose more than they make. If a man is going to limit his work and observation, and says he needs nothing but his own little bailiwick, he will find himself a small doctor. You take adenoids in relation to

phlyctenulæ, inflammations of the lacrymal duct—and I might go on and enumerate a number of diseases where the eye symptom is simply a result. In other words, it is a secondary disease, and the primary exciting cause is the nose. Here is a case in point: We all remember that we used to hear of cases of optic neuritis *ex causa incognita*—a learned name for ignorance. I remember having seen certain cases of optic neuritis on one side, and these were cases of *ex causa incognita*. About four years ago this was brought to my mind by a case I had similar to that mentioned by the Doctor, where a young lady was suffering from an optic neuritis, as plain as it could be seen with the ophthalmoscope, and no known responsible cause whatever. We bothered along with that case for months, and finally had to take up the nose, and not until the operations in the nose were instituted was there any relief. I had a case at my office yesterday of optic neuritis with intra-nasal disease, where the lady had been under the care of a gentleman in Indianapolis of fairly good attainments, who had paid no attention to the nose until he told the lady she would lose the sight of the eye, and he would begin treatment of the nose. You say: Why don't you send your cases to a rhinologist? It is not everybody who is going to have two specialists on the same case, and you ought to know something more than the retina. You ought to know the orbit; you ought to know the sinuses, the nose, and you ought to be able to furnish the remedy. And thanks are due to the oculist for bringing this fact before the profession, which was so ably done a few years ago by Dr. Holmes, and to his article we owe a great deal of thanks in putting us on the right track. His admirable article was a revelation to me; it was so graphic and so plain and so beautiful that it struck me like a flood of light. I think there is a middle ground. I do not think we should take upon ourselves that we are the only ones in it, but that we should recognize each other; and, therefore, I heartily endorse a society of this kind where the two kindred specialties are brought side by side and where we can study our cases together. I have come to believe that a man can be a very poor oculist indeed if he knows nothing about the nose. For years I refused to take these nose cases, because I thought I had enough to do and there were plenty of others to do these



things; but the force of practice drove me into the necessity of looking into the nose, and since I have been observing these cases in the vault of the nose I have had success that I did not have before. I commend the paper and think it deserves our consideration.

DR. A. ALT, St. Louis.—I would like to ask Dr. Holmes whether such nasal trouble always causes a one-sided optic neuritis, or whether obscure cases of one-sided optic nerve atrophy may also be due to this same cause. I do not remember that I have seen any cases like the ones reported. The close relation between the nose and the optic nerve was, however, brought home to me by the case of a man who had had an operation performed on the turbinate, and in a few hours afterward was perfectly blind on that side. Of course, we all know that cases of one-sided blindness may occur from a great many causes, and perhaps we must blame nose affections for these cases more than I, at least, thought. I have under my care now a young man who, on account of a one-sided dimness, went to an oculist and was given glasses, but instead of getting relief, went blind in a few days in one eye. He had his nose examined at my recommendation, but nothing abnormal was found. It was one of the cases for which we have no explanation; I think it must have been a vascular disease. I have given him iodide of potassium, and the vision is now about  $\frac{7}{200}$  in a small field.

DR. OSCAR DODD, Chicago.—I had a case of sphenoidal suppuration about a year ago, which, like the last case mentioned by Dr. Holmes, came to an autopsy, and found that there had been necrosis of the bone, breaking through, so that he died from meningitis; still, no symptoms of eye trouble presented until the meningitis developed. I examined him very carefully for eye trouble, as I suspected that sphenoidal suppuration was the cause, although he came to me with a mastoiditis, for which I operated. Later, serious symptoms developed from the sphenoidal trouble. I was surprised on looking up the literature on the subject to find so many men, in describing these cases, do not mention the eye symptoms, while others give them as the prominent ones. Schaefer, of Bremen, in reporting about seventy-five cases, says he has never seen eye trouble in any of the cases, although Knapp, of New

York, and Hardy, of Chicago, report cases where the eye symptoms were the first noticed. It is rather surprising that the optic nerve should not have been affected in a case where it was separated from the pus cavity, as it was in this case, by a thin wall, and was surrounded with purulent exudate at the time of the autopsy.

DR. C. R. HOLMES, Cincinnati.—I am and have been for several years very much interested in this subject, and have devoted considerable time to the study of the accessory cavities. My case, kindly referred to by the speaker, was a typical one, and caused me to look at this subject from a different standpoint. I beg to refer to it just for a moment. It was at that time the first case of its kind I have been able to find on record, where the diagnosis was made in time to restore vision.

The patient had suffered for several months, receiving treatment for malaria and other affections. Pain would compel him to sit, holding his temple and occiput on the affected side for hours, and I have observed that one of the symptoms of disease in the sphenoid is pain in the temple on the same side, and can be produced by putting a hook into the cavity and touching the side of the sphenoid cavity. I believe this to be an important symptom. I relieved this man after there was total loss of perception of light. Drs. Zenner and Ransohoff saw the case in consultation, but neither would give a positive diagnosis. Patient could not see a bright electric light before the affected eye. The vessels were reduced in calibre, and disc very pale. I removed the middle turbinated, opened the sphenoid freely, which was followed by the evacuation of pus from the cavity, and in a few days he began to improve and sight was restored, excepting for a faint central scotoma, due to the fact that the papulo-macular fibers were compressed too long. Had I known then what I know now, and operated early, I am positive even this would not have occurred. I had occasion to examine him recently, and found the sphenoid cavity perfectly healthy.

Another case belonging to the subject under discussion, I saw with the late Dr. Thorner, who had removed a polypus from the region of the middle turbinated body. Two days after, the patient developed a violent optic neuritis, followed by

complete atrophy of the affected eye. We must not go to the extreme, however, and expect to find eye complications with every case of sphenoid trouble, because there is a very large percentage who have had these troubles for ten, twenty and more years, and the eyes have never been involved. Others, again, only have asthenopic symptoms.

One of the most typical of this class I ever saw, and where the patient died from hæmorrhage, never had any optic neuritis. He came for glasses. His vision was perfect with the proper correcting lenses, but there was marked failure of accommodation. I obtained a post-mortem, at which Dr. Vail assisted. The necrosis was so extensive that the entire roof of the sphenoid cavity had been destroyed, and one could pass the finger into the sphenoid from above, while the anterior wall of the cavity was intact.

DR. VAIL, closing the discussion.—I have nothing to add to what has already been brought out in the paper, except to thank the members who have kindly discussed the paper, and to urge that we search diligently for sinusitis and at least strongly suspect it in cases of monocular optic neuritis.

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#### DISCUSSION ON DR. ADOLF ALT'S PAPER ON "BLENNORRHOEA NEONATORUM."

DR. DUDLEY S. REYNOLDS, Louisville, Ky.—I think Dr. Alt has modified very much those methods used in the beginning of his professional career, but I want to protest earnestly against the prevalence of meddlesome interference with the eyes of the new-born.

It has been my experience in the Louisville City Hospital, and I take it, it is the experience of others with the Credé method, that almost every one of the children have infected eyes before they are ten days old. When no meddlesome interference is practiced, the disease is rare. Careful cleansing of the new-born, when done by an intelligent nurse, whose hands have nothing to do with the lying-in woman and no other duties to perform, affords the best protection to the eyes of the new-born. When the eyes are infected, the patient must be put in a different ward. In that way we have been able to stamp out the disease. Until these methods were



practiced in the hospital we had frequent infection. There is no sense in medicating the sound, uninfected eyes of a new-born infant. I could not find language strong enough to pronounce my opinion of the meddlesome interference with the eyes of the new-born.

As to the nitrate of silver, I would like to say that it is impossible to treat all cases in exactly the same way; but where abrasion of the conjunctiva is distinct, where bloody discharge occurs, you may readily judge the disease is very probably gonorrhœal. Such cases have been called malignant when the cornea has been destroyed by the strong nitrate of silver applications. If an application can be made which will sterilize the fluids and wash the surface without irritating the eye, then it is reasonable to believe early recovery will follow; and, it may be safe to say that no lesions of the cornea will occur. In every instance where the bichloride solution is used, it should be associated with chloride of sodium, because the normal conjunctiva has always upon its surface a solution of this salt. If it be deprived of it, irritation follows. If you use a solution of chloride of sodium, five to ten grains to the ounce, and use it by irrigation every ten, fifteen or twenty minutes, according to the urgency, as indicated by the pus formed, it will cure the worst case of gonorrhœal infection. Corneal abrasions need never occur if irrigation is practiced sufficiently early. Irrigate every ten, fifteen or twenty minutes; the interval should never be greater than twenty minutes for the first four or five days of the disease. In the application of solutions of the bichloride of mercury, one-eighth of a grain of crystalized carbolic acid should be added to the ounce of solution to render the irrigation painless. The local anæsthetic properties of the carbolic acid add greatly to the efficiency of the treatment. Then, if we have in the chloride of sodium, and bichloride of mercury for bad cases, and borate with chloride of sodium for the mild cases, a means of treatment by which the cases get well in ten days, why should we be burning the eyes with nitrate of silver or protargol?

I am much pleased to hear Dr. Alt say that one part of nitrate of silver to 4,000 parts of water is sufficient to destroy the gonococcus; and that this solution of nitrate of silver has in some hands been found more potent than the one or two

per cent. solution. I believe that the weaker the solution, the better the result. I always keep in mind the statement of Sydenham, who said in his essay on the treatment of gonorrhœa, "He who cleanses well, cures well." The great point is to keep the pus away from the conjunctival surface, and not add to the injury already present.

DR. J. O. STILLSON, Indianapolis.—I never allow the Credé method to be used at Indianapolis without my consent. For many years I felt I was rather an old foggy about it, but I never could bring my mind to the point where I could see the necessity of tampering with an eye not already affected, and it seemed barbarous to me to put one per cent. of nitrate of silver into a normal eye. If I understand Credé's method, it is ten grains to the ounce, or stronger yet. I could not do that. Dr. Alt's paper meets my ideas with that exception, so far as the differential diagnosis is concerned, and I am glad he uses that old term "*blennorrhœa*." We know that he means a discharge, and it is not necessarily limited to the gonococcus, but is due to the different microbes, and the differential diagnosis can be made the first day. The time to begin your war is when war has been declared. Of course, when you talk about prophylaxis, that is a different thing. I would be the last to decry it, but that can be done with something else than Credé's method, and Dr. Reynolds has defined my position when he says we should take up aseptic methods instead of antiseptic ones. In Indianapolis we have not had to adopt it. We simply cleanse the eyes and use asepsis, and we have had good results.

DR. F. A. PHILLIPS, Chicago.—Dr. Reynolds has stated, "He who cleanses well, cures well." We have, however, one remedy, which in the cleansing process has been universally valuable, and that is permanganate of potash, and in the use of that remedy, where, as in my clinic at the Illinois Eye and Ear Infirmary, many of the patients will not come into the hospital, I invariably give this solution with instructions to use it every three or four hours, alternating with boric acid solution, which should be used every fifteen to thirty minutes in severe cases. This is a very effective treatment. The permanganate is used in a strength of 1 to 3,000 or 6,000 solution, depending upon the severity of the case, the amount of

infection, and the swelling. In the clinic I am in the habit of using a strong solution of protargol, and not the strong solution of nitrate of silver. I believe the weaker solutions are less effective.

DR. BROWN, Chicago.—It seems to me that in institutions we can safely accomplish many things that we cannot so safely accomplish in individual practice. I think we can run a great risk in simply making a routine of the care of these cases, and using this or that particular solution or remedy to the exclusion of others. Nurses and general practitioners without the necessary manipulative skill may, in attempting to carry out the measures we consider ideal, lacerate the corneal epithelium, thus opening up a pathway for infection. Very few of us believe that we directly kill the micro-organisms by the use of antiseptic solutions in this disease. Our aim is to render the conjunctival sac as near sterile as possible, and to maintain surroundings unfavorable to their further development. In this the frequency of cleansing is a most important factor, and if in this cleansing it be brought to mind that injury to the corneal epithelium must be avoided, we note an important element in the successful handling of the disease.

DR. O. DODD, Chicago.—There is one thing which I find to be of great benefit in keeping the eye clean, and which does away with the necessity of frequent cleansing. I think every ten, fifteen or twenty minutes is too frequent, as the children can not stand it. I have seen them so excited over the frequent disturbance that it would have been very serious if continued. The thing I speak of is the use of vaseline in the eyes after each cleansing. It has worked very well in the cases where I have used it. I have found in these cases there is much less danger of corneal infection. It protects the cornea, allows the secretion to get out by preventing the sticking together of the lids, and makes the frequent cleansing unnecessary.

DR. W. L. DAYTON, Lincoln, Neb.—A few words in regard to the keeping qualities of the protargol solutions. Of course, the same care must be bestowed on the preservation of the solution as on the nitrate of silver solutions, but it appears to me the one, five, or ten per cent. solutions deteriorate with age. I have noticed it, and frequently spoke of it, that it is more



irritating when frequently prepared, even in the weaker solutions, than is the stronger later on. Whether there is a precipitate or not, later it gets darker, which shows there is a deterioration. I have sometimes used a five per cent. solution of the older at the hospital and found there was less smarting than with the newer preparations of the same strength. I thought at first there was but little irritation from the protargol solution; in many cases there is considerable; it is only for a moment, and is nothing like as lasting as the weakest of the nitrate of silver solutions. There is a close distinction between asepsis and antiseptis. In the treatment of the eyes of the new-born, cleanliness is the great factor, and even then we use the simple normal salt solution. When it is used five to ten grains to the ounce, it is a little above the normal salt solution; therefore I use two and a half grains to the ounce. But so far as the frequent cleansing the eyes of the new-born, I believe it is essential to keep them clean of secretion, and I advise the nurse to do this thoroughly as often as may be necessary. The country doctor does not have the advantage of the city doctor and can not depend upon trained nurses, but has the neighbors, or possibly some old lady who is the nurse in the neighborhood at time of confinement; these people are very careless with the baby's eyes. I find this disease is much less frequent than it used to be—whether it is because of the teaching of our colleges that cleanliness is important, or that the old women are less frequent and supplanted by trained nurses. But whether we use an aseptic or antiseptic, it is the main feature to use it so that it will not irritate the cornea. Permanganate of potash is undoubtedly good. Of course, in the strength of 1 in 3,000 it has certain staining qualities which are bad, and its value is not greater than the borate solution or the normal salt solution.

DR. C. W. DODD, Cincinnati.—A question in our private practice arises as to just how this cleansing shall be done to avoid injury. We are apt to say, "This must be cleaned so often." But how is that cleansing to be done? If you simply say, wipe the pus out with cotton, you run the risk of scratching with the fingernail. Or, if you suggest wrapping cotton on a wooden tooth-pick, the nurse or mother is liable to leave the end of the pick projecting, endangering thereby the cornea or

conjunctiva. I try to furnish the person who is to carry out my instructions with a simple glass rod, such as I have used for the past thirteen years. The idea was given me by Prof. Leber, now of Heidelberg. The glass rods are solid, one-eighth of an inch in diameter, and about four or five inches in length, and they should taper somewhat at each end; both ends should be a trifle flattened or spatula-like. No other form of cotton carrier can be so clean, remain aseptic, and be so incapable of harming the eyes; cotton is easily wrapped on to the rods and as easily removed. By means of the rod, cotton can readily and carefully be passed under an upper lid, which is difficult to evert, and with no injury to the epithelium of cornea or lid. Vaseline ointment, either simple or medicated, I also use in these cases; and for introducing any kind of ointment into the eye no other means is so safe and cleanly as these same glass rods. In the thirteen years I have been using these rods daily, I have never had the slightest injury result therefrom.

DR. D. T. VAIL, Cincinnati.—I wish to add my experience. The remarks so far have left unchallenged the plea made by the essayist for the milder applications in this dread disease of the eye instead of the old-fashioned strong nitrate of silver solution.

In the Cincinnati hospital I had some sad cases of blennorrhœa neonatorum, in which the diagnosis was made with the microscope and the gonococcus found present; and I being anxious to spare these little beings the sufferings which I had been led to believe they must undergo, when powerful astringent solutions were used, tried the newer methods, as recommended by the essayist. I used the protargol thoroughly in the weaker solutions, and also the Scott's solution, and am sorry to say that my experience was very sad. The eyes were lost; they ran out, and I believe if I had it to do over again I could have saved them by the old regulation nitrate of silver treatment. I have gone back to the nitrate of silver solution. I turn the eyelid over and keep on turning it to expose the rugæ of the cul-de-sac, and then by means of a soft camel's hair brush I apply the two per cent. nitrate of silver solution thoroughly, being careful to avoid the cornea. I then gently mop the excess of the solution by means of wet cotton, well

squeezed, apply a little plain vaseline, and use ice applications. I am free to confess that in an experience of twelve years I have yet to see the first case lost when so treated, except where the cornea was already ulcerated before this treatment was instituted.

DR. C. R. HOLMES, Cincinnati.—In regard to the use of protargol, I have tried it in normal eyes in solutions from three to twenty per cent. to ascertain the strength that could be borne without suffering, if the preparation is properly prepared. Dr. Emil Gruening told me several months ago he was using twenty per cent. solutions in private practice, and he was enthusiastic over the result. Recently he referred to the subject in the same terms. I would ask what experience others have had with the retractor irrigator under the lid. I do not see why a glass rod should be used. Soft pledgets of cotton are all we need. The vaseline I have also used for a long time, and I consider irrigation every ten minutes too frequent, as it exhausts the child. I never irrigate oftener than every half hour or hour.

DR. DUDLEY S. REYNOLDS, Louisville.—I abhor the idea of touching the eye with any instrument. My method is to take the glass out of a common eye dropper and place it in the end of the rubber tubing connected with a rubber bag of not less than a quart capacity. The bag should hang twelve inches above the plane on which the patient's head rests. This gives a small stream which will play over the surface of the lid, holding the upper lid up and the lower lid down with the finger and thumb. Then by holding the nozzle over the bridge of the nose, never permitting it nearer to the eye than one inch, the danger of wounding the cornea is entirely removed. A small bit of cotton-wool should be held on the temple to catch the flow. Do not touch the eyeball, but hold the lids with the fingers, and let the fluid play on the everted lids, never on the cornea. As to vaseline, it is unreliable, as we never know what it may contain. We should always order petrolatum, which is recognized by our Pharmacopœa. This may be relied upon as a safe and mild antiseptic.

DR. ALT, St. Louis, in closing the discussion said: We are all of the same opinion—that we would not put any medicine into the eyes unless there is a suspicion of infection. In-



deed, I spoke of cases where I was satisfied that very thing had produced the discharge. With regard to cleansing of the eyes by the nurse, I am greatly in favor of their doing it without coming in contact with the eye. By using a large amount of warm borate solution with the eye dropper and simply manipulating the lids gently, they will be able to wash out nearly all of the pus without touching the eye itself. With regard to the decomposition of the solution Dr. Dayton spoke of, I am satisfied that it deteriorates when it gets old. However, I use it all the time, and my solutions have not time to get old. I have not used nitrate of silver for three years in any case whatever. I have used protargol in every case. This I could not have done if I had not found it to be what I claim for it. I would not give the nurse a glass rod; it is too dangerous. With regard to the camel's hair brushes Dr. Vail speaks of, I never use them any more. I examined some of my brushes under the microscope and I am satisfied that some of the little hair spikes come off, and I use no more brushes. I use cotton wound around the little instrument the dentist uses to drill in the nerve canal. When I buy this, it is sharp at the end which I wrap the cotton, and this I file off. With regard to the loss of eyes Dr. Vail speaks of, I never have had such an experience. I have been perhaps extraordinarily fortunate, but I do not remember any eyes lost from blennorrhœa neonatorum, not only in my practice, but also that of others, which had come to the specialist at a time when there was not yet any alteration of the cornea.

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#### PAMPHLETS RECEIVED.

“Thirty-Second Annual Report of the Brooklyn Eye and Ear Hospital.”

“Treatment of Nasopharyngeal Adenoids,” by L. J. Lautenbach, M.D.

“An Original Chart of the Neuronic Architecture of the Visual Apparatus,” by L. Stricker, M.D.

“The Diagnosis and Treatment of Some Functional Forms of Defective Speech,” by G. H. Makuen, M.D.

## THE VALUE OF METHYL BLUE AS A LOCAL APPLICATION.\*

By M. F. COOMES, A.M., M.D.,

Professor in Physiology, Ophthalmology, Otology, and Laryngology in the Kentucky School of Medicine; Member of the American Medical Association, the Kentucky State Medical Society, and the Louisville Clinical Society; Ophthalmic Surgeon to the Louisville City Hospital, and Kentucky School of Medicine Hospital; Consulting Ophthalmic Surgeon to St. Mary's and Elizabeth's Hospital.

LOUISVILLE, KY.

*Mr. President and Gentlemen of the Western Ophthalmologic and Oto-Laryngologic Association:*

IN presenting this subject to your society, I will endeavor to present the clinical side of it exclusively. The methyl blue, as you all know, is a coal tar compound used extensively in dyeing and in the arts, and staining bacteriological specimens. It is a diaphénylamine compound; it is known as such to the laboratory chemist.

First of all, it is a germ destroyer, and this property is most likely due to its great penetrating powers. Possibly it chokes the germs to death. My first experience with it was about the time it made its appearance on the market, some fifteen years since. The first case in which I used it with marked benefit was in a case of lupus of the nose. This case occurred in the person of an old woman, and was apparently a hopeless one. I ordered a solution of the drug in the strength of five grains to the ounce of water, to be applied after thorough cleansing night and morning. The sore healed rapidly and has remained closed from that day to this. This patient had gone the rounds of the profession, and had been treated with almost all of the drugs that are used for the cure of open sores.

I have treated suppurating otitis media with it for years, and with most satisfactory results. After the suppurating surface has been rendered as nearly clean as possible, a solution of five grains to the ounce of water is dropped into the ear and permitted to remain by packing the external canal with cotton. In many cases where the discharge is slight, a single application will dry the ear for weeks and even months. Its curative powers in these cases seems to be due to its pow-

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\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.

ers for penetrating and staining open tissues. It finds its way into recesses that the cleansing solutions and other agents can not reach. In suppurating conditions of the lacrymal sac there is no application that equals it in arresting the discharge. When the sac has been properly drained, a few washings with the blue will suffice to destroy the pus.

In diseases of the antrum of Highmore, where there is pus, it will be found equally valuable. In some of those cases, with the most thorough drainage there may be a pocket that contains pus, and the blue will be one of our most valuable agents in making the cure complete. In all of these cases the blue will be one of the most valuable agents at our command.

In carbuncle it is equally valuable, and in fact its value in the treatment of an abscess anywhere cannot well be over-estimated. Time and again I have seen large carbuncles about the neck cured in from eight to ten days by the following treatment: A crucial incision under local anæsthesia; the cavity or cavities evacuated and swabbed out with liquid carbolic acid, and then mopped out with methyl blue and packed lightly with gauze saturated with the blue. If there are many cavities, as there is in some cases, they should be thoroughly cleansed after the first dressing has been removed, and redressed with the blue each day until recovery is complete.

In purulent conjunctivitis—*ophthalmia neonatorum*—it ranks with any local agent at our command. I have relied on it for years, and in all of that time have lost the eyes of but one child. In this disease the same rules as to cleanliness must be pursued, and the blue applied two or three times a day, according to the emergencies of the case. It does not check the suppuration so suddenly as silver, and in fact its action is entirely different. It will not stain the cornea permanently. Its use should be persisted in to secure the best results.

As a means of diagnosing the presence of corneal ulcers, it has no equal. Its affinity for open tissues is so great that it takes hold of them and makes such a clear outline that it not only defines the outline of the ulcer, but furnishes a guide for the application of the actual cautery or any one of the caustics that is necessary to apply. Its value in these cases is especially valuable to practitioners and surgeons who are



not experts in detecting these ulcers; in fact, in any case where there is doubt as to the absence or presence of an ulcer of the cornea, this stain will settle it promptly.

It not only stains them, but it is one of the very best local applications that can be made to ulcers of the cornea where the use of a strong caustic is not demanded—either before or after the caustic application. Its germicidal properties are here fully demonstrated.

In cases of follicular tonsillitis, it is almost a specific. In the clinic at the Kentucky School of Medicine, where every opportunity to demonstrate its efficacy is afforded, there have been hundreds of cases treated in the last ten years. It is a rare thing to have them make a third visit, the great majority of them not making more than one visit.

*Cancer.*—In epithelioma, I have witnessed some remarkable results from the local use of methyl blue. One most remarkable case, that of a Mr. White, at Big Clifty, Kentucky. This man had lost a brother from cancer, beginning in the lip, extending to the larynx, and finally killing him.

At the time I saw Mr. White, fully one-third of the lower lip was involved, and was in such a condition as to suggest the prompt and free use of the knife as the only means of giving any relief. It was one of those angry looking sores that is frequently met with in practice that suggests the idea of feeling grateful to think that the other fellow has the sore.

The clinical appearance of the sore was such that the free use of the knife was the only thing that entered my mind as a means of relief. The patient and the doctor both objected to the use of the knife, and, as a compromise, the blue was applied, with the understanding from me that I did not believe that it would do any good. Much to my astonishment, the sore began to improve, and in forty days was entirely well, and has remained so until now, and the man is enjoying excellent health.

This is an ideal case, where the results exceed all expectations; but I have observed many cases where the growths have disappeared, and open sores of long standing have been healed up by the use of the blue. I think it a most valuable agent, that has been overlooked, and I trust that this paper will result in its increased use, as it must necessarily prove beneficial to both doctors and patients.

## DISCUSSION.

DR. J. O. STILLSON, Indianapolis.—I simply wish to ask one or two questions about the bactericidal properties of this drug. I understand the Doctor makes a solution in water—five grains to the ounce of water. Is it simply the aqueous solution of methyl blue that is taken up by the tissue that comes in contact with the bacteria and stains them, or is it necessary that this be used with some other bactericidal agency or anything besides water? We all know, of course, that in staining bacteria we first fix them on slides. Now the fixing process by means of heat is the killing process. I simply ask for information, because I do not know why it should act as a bactericide on account of its coloring; whether the re-bleaching by the Gram method might not bring the bacteria to life again.

DR. ADOLF ALT, St. Louis.—As soon as I had read Stillson's article, recommending pyoktanin (methyl violet) as an antiseptic, I procured it, and have, in a measure, been using it ever since. My first experiences I published in a paper in the *AMERICAN JOURNAL OF OPHTHALMOLOGY*, Vol. X., p. 314. I have experimented with it largely in eye diseases; and while I can also testify to its good qualities, particularly in the treatment of the lacrymal sac, I have had to abstain from it in my private practice on account of the staining. My patients did not want to go about with blue eyes. I have also used it in purulent otitis media, and when applying the pyoktanin solution in good quantity, so that the whole tissue is stained, you will find a very rapid and astonishing change in the discharge from pus to mucus. Some cases even get well in a very short time; others, however, do not. Whether this is due to the bactericidal power, I am unable to say. That it must have some kind of astringent quality, seems quite clear from the fact that the mucous membrane gets hard and dry after its application. I usually use one grain to the ounce. It acts sometimes a great deal better than boracic acid. I also quite recently found it to exert a most beneficial influence in cases of dry eczema of the meatus auditorius.

DR. COOMES, Louisville, in closing, said: I have made no microscopical examinations, and simply assume that the cure must be due to its bactericidal qualities. You take tonsillitis;

we know it is a germ disease. In my practice they get well without trouble, and it is simply an assumption that it is by germ destruction. It is a great drier. I have a great many friends whose experiences with the blue have been similar to mine. The five per cent. solution gives considerable pain.

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## BOOK REVIEWS.

MYELITIS UND SEHNERVENENTZÜNDUNG (MYELITIS AND NEURITIS OPTICA). By DR. MAX BIELSCHOWSKY. With Four Plates and Three Illustrations in the Text. [Berlin, 1901. S. Karger. Price, 4 marks.]

In this most interesting work the author reports four cases of optic neuritis, associated with myelitis, which he has had occasion to examine in a very exhaustive manner, both clinically and microscopically. Some excellent micro-photographs and drawings accompany the text. The changes in the optic nerves showed no direct connection with those in the spinal medulla, and the contemporaneous appearance of the spinal disease and the optic neuritis and consequent atrophy, could be explained only by ætiological factors common to both affections.

ALT.

SYMPATHICUS-RESECTION FOR GLAUCOMA. By DR. M. ZIEHE and PROF. TH. AXENFELD. From the Eye Clinic of the University of Rostock. With Ten Illustrations. [Halle, A. S. 1901. Carl Marhold. Price, 2 marks.]

In this excellent and exhaustive review on the subject, the authors make use of seventy-four cases, five of which are their own. They conclude that sympathectomy is not a dangerous operation. That while in acute inflammatory glaucoma it is, as a rule, out of place, it may do good in hæmorrhagic, chronic, inflammatory and simple glaucoma. In most cases it is only to be resorted to after iridectomy has been performed. In all cases of glaucoma in which the present therapy does not succeed, sympathectomy is justified and recommended, although we cannot count on its always being successful.

ALT.



# MEDICAL SOCIETIES.

## PROCEEDINGS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.\*

CLINICAL EVENING.

*Thursday, May 2nd, 1901.*

G. ANDERSON CRITCHETT, M.A., F.R.C.S.E., President,  
in the Chair.

### PULSATING DOUBLE EXOPHTHALMOS.

MR. NETTLESHIP, for DR. D. J. WOOD, read notes of a case of pulsating double exophthalmos following injury to the head, cured by ligature of the left common carotid. The patient, an engineer, fell on his head from a bicycle and was picked up unconscious. The exophthalmos developed gradually, pulsation being very obvious, and the left carotid was ligatured ten days after the accident. Pulsation was arrested immediately, but some signs of aphasia and paresis supervened, which cleared up, marked improvement occurring in twenty-four hours. After operation, vision in the right eye was  $\frac{6}{6}$ , in the left  $\frac{6}{60}$ , owing to atrophy and scotoma. Pulsation and proptosis were permanently abolished.

MR. TREACHER COLLINS referred to a case under his care two years before, resulting from a bullet wound. The missile was located by the X-ray at the base of the basilar process; there was pulsating exophthalmos, and the *bruit* was not only audible to the patient, but to those near him. Manual pressure was tried, but proved unsuccessful, and Mr. Openshaw ligatured the common carotid with great benefit, though the condition recurred after eight months, but in less degree.

### CONGENITAL PTOSIS.

MR. G. W. ROLL exhibited two cases of congenital ptosis in which Hess's operation had been performed with benefit. The elder lad had been operated upon three years ago, and the cure was probably permanent. One year only had elapsed in the case of the younger, but in this the condition was bi-

\*British Medical Journal.

lateral, and he had quite lost the habit of throwing the head back, common in these cases. Mr. Roll referred to Mr. Lawford's account of Hess's operation in the thirteenth volume of the *Ophthalmic Review*, but said he preferred to leave the stitches in fourteen days instead of ten, and also inserted them nearer the free margin of the lid instead of midway between that level and the margin of the orbit.

THE PRESIDENT cited five cases in which he had operated, of which two were permanently successful, and three appeared to be drifting back to their original condition.

#### SARCOMA OF ORBIT.

MR. SIMEON SNELL exhibited a sarcoma of the right orbit, removed from a miner, aged 38, on December 10, 1900. A small nodule had been noticed eight months previously beneath the lower lid, and had gradually enlarged, till at the time of the operation the growth was the size of a pigeon's egg, freely movable, painless, and could be pushed back along the floor of the orbit. The globe was slightly raised. When removed, the tumor was kidney-shaped, 3 cm. long by 2 cm. wide, definitely encapsuled, and made up of large spindle-shaped cells.

#### SEROUS IRITIS AND TACHYCARDIA.

DR. RAYNER D. BATTEN exhibited two cases of serous iritis with tachycardia. The first, a girl, aged 14, had been one year under observation. The serous iritis was very marked, and in January last a nodular deposit appeared in the inferior angle of the anterior chamber; this had diminished somewhat, and become vascular. The tachycardia and thyroid enlargement had improved at one time and then recurred. The second girl, aged about 20, presented well-marked serous iritis, with synechiæ of the iris. There was persistent tachycardia, with enlarged heart, tremors, and flushings, but no distinct enlargement of the thyroid. The speaker had met with other cases of a similar kind, one of which suffered a destructive sclero-keratitis, with loss of the eye.

THE PRESIDENT recalled two cases presenting this combination of symptoms.

#### CHOROIDITIS.

MR. G. HARTRIDGE exhibited a case of choroiditis, which

had been shown in an early stage in December, 1898. Vision in one eye was  $\frac{6}{6}$ , and in the other  $\frac{6}{60}$ , though the fundus change in both seemed about the same.

THE PRESIDENT referred to a somewhat similar peculiarity of vision in connection with *nebulæ*; sometimes with a small area of cornea involved vision was very defective, while in others with an apparently extensive opacity the patient could see wonderfully well.

#### PERISCOPIC GLASSES.

MR. A. S. PERCIVAL showed a pair of periscopic glasses. The lenses, being concave, allowed of lateral movement of the eyes, provided the paper read was slightly curved, without the distortion usually experienced while using lenses ground on the flat. The curve was so arranged that the circle of confusion, developed when looking 25 degrees right or left, was not larger than the maximum sectional area of a retinal cone—0.002 mm.

#### MALFORMATIONS.

MR. W. LANG showed an infant with a congenital notch in the outer part of the left lower lid, and dermoid growth on the eye; the latter was flat, and more loosely connected than usual.

MR. ADAMS FROST exhibited a girl with a variety of malformations about the face. There was a quadrilateral gap in the right upper eyelid, the lashes being absent, while above the eyebrow was a tuft resembling them. The caruncle was deformed, and at the outer canthus there projected a mass resembling a lobe of the lacrymal gland. The development of the external ear was defective on the same side, and though there was no meatus, hearing was not entirely absent. A dermoid structure existed near the right angle of the mouth, also projecting on the inner aspect, and there was a dimple on the left side, as if something had been removed. The eye was healthy; there was no coloboma of the choroid.

MR. JOHNSON TAYLOR said that dermoid growths on the cornea sometimes had deeper connections than were apparent, and required to be handled with caution to avoid perforating the globe.

THE PRESIDENT recommended a blunt-pointed knife for the purpose.



REFRACTOMETER.

MR. C. BLAIR exhibited a portable refractometer, which consisted of a spectacle frame carrying revolving discs fitted with glasses so arranged that an extensive range of lenses could be placed before each eye, saving time and trouble in retinoscopy and testing. The discs were five inches in diameter, and the frame weighed eight ounces.

FOREIGN BODY IN EYE.

MR. J. B. STORY showed a thorn which had been buried in the iris at the edge of the anterior chamber for two months, the outer end being entirely obscured by lymph; when once discovered the removal had not been attended with difficulty.

THE PRESIDENT said that he had found a splinter of wood in the anterior chamber of an eye that had been injured while the patient was chopping wood twelve years previously. Some irritation had occurred on three occasions.

PRIMARY CHANCRE OF LID.

MR. C. WRAY showed a case of primary chancre of the lower lid, which had been inoculated by the finger nail after scratching a specific sore.

DETACHED RETINA.

MR. C. WRAY also exhibited a man who had had extensive detachment of the retina. There were 15 dioptries of myopia. The tunics of the eye had been twice punctured with a Graefe's knife at a fortnight's interval, after the manner described by Wolf. The eye, in addition, had been bandaged and instilled with atropine, and pulv. hyd. c. cret. had been administered in 2-gr. doses thrice daily. The retina had become reattached to the choroid, and vision was  $\frac{6}{60}$  and improving.

MR. MARCUS GUNN said the operation in question had been repeatedly performed before the account published by Wolf, and could not rightly be associated with his name. In the present case there was still a little detachment, and also some affection of the choroid resulting from the interference, which no doubt assisted the reattachment.

MR. JOHNSON TAYLOR said he had performed the operation two or three times, but thought in all the cases the patient's condition had been made worse.

THE PRESIDENT said his own experience had been dis-

astrous. One case, in which he had advised against the operation, had since undergone three operations in Paris, at considerable expense, and vision was only equivalent to J. 19, though previously it had been J. 8.

[A third case was one of doubtful exostosis of the orbit (with skiagraphs)].

#### SPRING CATARRH.

MR. HOLMES SPICER showed a case of spring catarrh in a quiescent stage. The appearance was quite typical, the milki-ness of the lids, and the granular condition of the conjunctiva being well marked and showing the characteristic hexagonal pavement appearance. The patient had spent three years in Johannesburg, having attacks each summer, but suffered most of all when crossing the line at sea on his return while exposed to the greatest heat.

MR. W. LANG expressed his opinion that it was of the greatest importance that rather uncommon cases of this sort should be shown at the Society. He had under his care at the present time a child who had, in consequence of this complaint, been subjected to a plastic operation, which had resulted in ptosis, pannus, and iritis. Had the condition been recognized, no such treatment would have been undertaken.

#### DOUBLE TEMPORAL HEMIANOPSIA.

MR. A. H. THOMPSON showed a case of double temporal hemianopsia with optic neuritis, which occurred suddenly at 5 A.M., three weeks ago, in a young woman, in association with the vomiting of pregnancy. The outer half of the visual field was lost in both eyes, which presented the characteristic hemianopic pupil reflex, no contraction taking place when light was directed from the temporal side, though it was manifest when thrown into the eye from the nasal side. The discs showed the changes of neuritis. The lesion was probably of the anterior part of the chiasma.

MR. MARCUS GUNN had suggested hæmorrhage into the pial sheath.

THE PRESIDENT thought the indications were against the supposition of tumor.

#### THIERSCH'S GRAFT OF ORBIT.

MR. J. H. FISHER showed a case of Thiersch's graft of

the orbit employed after removal of the globe, retro-ocular tissue, and lids for sarcoma of the sclerotic. There had been three operations. The skin was obtained from the arm, and a month after the operation had covered the orbit, obviating at once the slow process of granulation and the unsightly contraction of the eyebrow. Three other cases had been treated in a similar way, with equally good results, by Continental surgeons.

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#### PAMPHLETS RECEIVED.

“Hæmorrhagic Glaucoma,” by Ch. A. Oliver, M.D.

“A Scientific Basis for Medicine,” by E. C. Hebbard, M.D.

“The Relation of Migraine to Epilepsy,” by A. A. Hubbell, M.D.

“Operation Insuring Motility of the Artificial Eye,” by H. Wolff, M.D.

“The Throat and Nose in Scarlet Fever,” by W. Cheatham, M.D.

“Sterilization of Instruments with Formaldehyd,” by H. O. Reik, M.D.

“Report on the Examination of the Ears of 440 School Children,” by H. O. Reik, M.D.

“A Case of Sinus Thrombosis Complicated by Cerebellar Abscess,” by E. B. Dench, M.D.

“Fifteenth Annual Report of Maine Eye and Ear Infirmary,” Portland, Me.

“Clinical and Histological Study of a Case of Melano-Sarcoma of the Choroid,” by Ch. A. Oliver, M.D.

“Demonstration of Microscopical Specimens at the Heidelberg Ophthalmological Society,” by T. Axenfeld, M.D.

“On the Minute Histology of the Lacrymal Gland, Especially the Presence of Fat Within the Epithelia,” by T. Axenfeld, M.D.



## ABSTRACTS FROM MEDICAL LITERATURE.

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By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### ON ULCUS RODENS CORNEÆ.

Schmidt-Rimpler (*Archives of Ophthalmology*, March, 1901) describes this rather rare condition, and reports a case. The disease begins as a narrow extended ulcer along the corneal margin. It differs entirely from *ulcus serpens*, which usually begins at the center and progresses toward the periphery. It might be confounded with shallow marginal ulcers, seen in old people, but the periphery does not heal with a new formation of vessels and thickening of tissues, while the ulcer extends centrally. Moreover, these ulcers have not the undermined gray margin, and are more transparent. There is a particular form of marginal ulcer, which the author, in his text-book, calls chronic peripheric furrow keratitis, which might in the beginning be confounded with *ulcus rodens*, but it never extends centrally, as does the latter. The etiology of rodent ulcer is uncertain. The author rejects the view of Ahlstrom and others, that it may be due to anæsthesia of the corneal nerves. The most rational treatment, he thinks, is cauterization and scraping, and possibly covering the ulcer with conjunctiva, though a favorable result can not always be expected.

### A CASE OF LEFT HOMONYMOUS HEMIANOPSIA, PROBABLY HYSTERICAL.

M. N. Zimmerman (*Ophthalmic Review*, March, 1901) reports the case of a servant, aged 25 years, who enjoyed fairly good health, and gave no history of injury to head. During the two years previous to consulting the author, she had six convulsive seizures, with loss of consciousness. On account of one of these she was admitted to the hospital, where she had several seizures within two days. On the third day after admission, an ophthalmoscopic examination was made, and the fundi were found normal. Vision, however, was *nil*,

“except the perception of light in the left halus of both visual fields.” Three days later the patient’s condition permitted careful perimetric records to be made as to form and red in the right eye, and on the following day in the left. The patient made a rapid recovery, after general and local treatment for a retroverted uterus. Sixteen months later, she wrote that she was in good health, and had no eye trouble of any kind.

The author thinks a diagnosis of hysteria is justified by the following facts:

1. The temporary character of the hemianopsia and its association with marked peripheral contraction in the retained fields.

2. The presence of reversal in a marked degree after recovery.

3. The absence of any other symptom of organic disease, and the very definite association of the attacks with delayed and painful menstruation.

4. Disappearance of all symptoms after partial cure of the pelvic condition, with great improvement in general health.

#### MELANO-SARCOMA OF THE CHOROID, WITH REPORT OF THREE CASES.

Francis W. Alter (*Toledo Medical and Surgical Reporter*, March, 1901) reviews the symptoms and stages of this disease, and reports three cases. His conclusions are as follows:

1. Melano-sarcoma of the choroid is a fatal disease. Probably not more than 15 per cent. make an absolute recovery after operation.

2. The prognosis of this affection, though grave in all stages, is best with an early operation.

3. It is well-nigh impossible to make a diagnosis of acute inflammatory glaucoma due to tumor when the fellow-eye presents a glaucomatous aspect, as evidenced by Case No. 1 recorded in this paper.

4. The round-celled highly vascular tumor speaks almost unequivocally of a fatal termination. The spindle-celled growth gives a much more hopeful outlook.

5. The presence of melanin in the urine gives strong evidence of metastatic involvement. It foreshadows a fatal termination.

## CASE OF CAVERNOUS ANGIOMA OF THE ORBIT.

A. L. Whitehead (*British Medical Journal*, April 13, 1901) reports a case of cavernous angioma of the orbit in a man, 51 years of age, which had first been noticed about ten years previously. There was sufficient exophthalmus to prevent closure of the lids, and an ulcer on the cornea had developed. The movements of the eyeball were decidedly restricted, and the pupil was dilated. The tumor was bluish-black, and could be seen above the globe. No pulsation was present. The growth was not attached to the walls of the orbit. The fundus was healthy, and vision =  $\frac{6}{60}$ . Under ether, the external canthus was divided, the capsule was dissected up, and the external rectus divided; the tumor was removed *en masse* with some difficulty, but without injury to the eyeball. The growth was lobulated, and nearly encircled the optic nerve. Hæmorrhage was slight, requiring no ligatures. The recovery was uneventful, and the vision improved to  $\frac{6}{9}$ , with almost normal movement of the eyeball. The growth measured  $5\frac{4}{5}$  cm.  $\times$   $3\frac{7}{10}$  cm. Examination showed it to be a cavernous angioma of the fibrous variety.

DIFFERENT METHODS IN WHICH GLIOMA OF THE RETINA  
INVADES AND AFFECTS THE OPTIC NERVE.

E. F. Snodacker (*Archives of Ophthalmology*, March, 1901) thinks the methods of invasion of glioma of the retina are as follows:

1. The commonest method of invasion is for the tumor cells to force their way through the interspaces of the lamina cribrosa, into the nerve-fiber bundles, to follow these backward, invading them and substituting glioma cells in their place.

2. The perivascular spaces of the central vessels also afford a means of ingress for the tumor cells. The tumor pushes its way in alongside the vessels, and then the cells radiate outward in the stroma of the nerve exactly as the anatomy of the parts would lead us to expect, for the septa are connected with the vessel sheaths, radiating outward and forming the sustentacular framework of the nerve.

3. The cells, after infiltrating the nerve fibers through the



lamina cribrosa, invade the pial sheath, fill the intervaginal sheath, run backward and reinvade the nerve, mainly along the septa.

4. The cells invade the choroid, then follow the course of the posterior ciliary vessels and nerves. In this manner they may invade the dural sheath in one of two ways: they may force their way between the fiber bundles of the sclera and thence into the dural sheath and intervaginal space, or they may make their way into the retrobulbar space and from here invade the dural sheath.

5. The glioma cells follow the course of the venæ vorticosæ, and from here follow the lymph channels into the supravaginal space and infiltrate the nerve sheaths.

6. Tumor perforates the ball and invades the nerve from the orbit.

#### CONTRIBUTION TO DIPHTHERIA OF THE CONJUNCTIVA.

Schlisinger (*Münchener Medicinische Wochenschrift*, January 15, 1901) reports two cases of pseudo-membranous conjunctivitis. In the first, diphtheria bacilli were not obtained in the cultures; nevertheless, an injection of antitoxic serum was given, and, in addition, vigorous local treatment with antiseptic solutions was employed. The patient made a good recovery. In the second case, diphtheria bacilli were found. The same treatment was employed with equally satisfactory results. The advantage in employing anti-diphtheritic serum is that it hastens the separation of the membrane, and improves the general condition of the patient. It should be used as soon as the diagnosis is made.

#### TREATMENT OF DETACHMENT OF THE RETINA.

Sträkle, in his (Basel) Inaugural Thesis, gives an account of the treatment of twenty-three comparatively recent cases of the disease by subconjunctival injections of salt solution. In ten cases there was a marked improvement, with complete restoration of the detached membrane in three. In nearly all (twenty-one) improvement of vision set in; in seventeen there was an enlargement of the field of vision. As might have been expected, the more recent the detachment, the more marked was the improvement. The operator began usually with a

weak (two per cent.) solution, but finally employed a four and even a ten per cent. solution. In many instances the last strength seemed the most effective. The author thinks that the exosmosis and endosmosis set up by the salt solution reduces the amount of the subretinal fluid without decreasing the vitreous mass, thus permitting the retina to resume its normal position. There is, at least, one consideration not to be lost sight of in this connection. In choosing a form of treatment for detachment of the retina, this plan has the advantage of being without risk—which cannot be claimed for procedures like the Schoeler and Deutschmann methods.—*Ophthalmic Record*, April, 1901.

#### FIVE HUNDRED OPERATIONS FOR CATARACT.

S. N. Korskenewsky (*Vratch*, March 3, 1901) reports five hundred cataract extractions, with the following results: Good vision in 348, or 67.2 per cent.; medium in 61, or 13.5 per cent.; poor in 17, or 3.8 per cent.; vision lost in 25, or 5.5 per cent. The results in 49 cases are not reported. The operations were performed under various circumstances; in hospitals and in peasant huts. Almost all forms of cataract, with their usual complications, were represented. Iridectomy was done in every case. The author insists on thorough asepsis and antisepsis.

#### A CASE OF NON-COMITANT RIBBON-LIKE KERATITIS, WITH REMARKS.

M. F. Weyman (*Ophthalmic Record*, April, 1901), from a study of the case reported, infers:

1. That ribbon-like keratitis arises from trophic disturbances in the lymph spaces of the anterior layers of the parenchyma.

2. That, as a result, Bowman's membrane suffers and thus produces epithelial hypertrophy in the same manner as a low grade of irritation in a wound would produce unhealthy granulations.

3. That calcareous degeneration is an accidental result, but that desiccation being most easily effected in the line of the palpebral fissure, the typical bands would naturally appear there first.

## SUPRARENAL EXTRACT.

W. H. Bates (*Medical Council*, March, 1901) gives his experience with this remedy in various ocular troubles. He has treated many cases of conjunctivitis successfully with local applications, and finds it a valuable remedy in the treatment of keratitis, iritis, glaucoma, and dacryocystitis. The author considers it a safe remedy to use in all inflammations of the eye. As a hemostatic, in eye operations, he considers it the best.

## NEURITIS RECURRING AFTER ATROPHY OF BOTH OPTIC NERVES IN A CASE OF BRAIN TUMOR.

Edward R. Williams (*Boston Medical and Surgical Journal*, May 16, 1901) reports a case in a woman, 22 years old. There had been attacks of headache and vomiting, followed shortly by failing of vision, which could not be improved by glasses. One year later, there was marked atrophy of both nerves, with signs of old hæmorrhages about the maculæ. Two days before death, which occurred three months later, after prolonged coma, ophthalmoscopic examination showed typical double optic neuritis. The literature on the subject is extensively referred to.

## A CONTRIBUTION TO THE SYMPTOMATOLOGY AND HISTOLOGY OF PRIMARY MYXOSARCOMA OF THE OPTIC NERVE, AND THE OPERATIVE REMOVAL OF SUCH GROWTHS BY KRONLEIN'S METHOD.

Axenfeld and Busch (*Archives of Ophthalmology*, May, 1901), after reporting a case in which a myxosarcoma was removed from the posterior orbit, surrounding the optic nerve, call attention to the noteworthy features, which are:

1. The periodic variation of the exophthalmus, with accompanying fever.
2. The almost perfect acuteness of vision and complete field on the day of operation after the exophthalmus had lasted eight months and a considerable tumor of the nerve had developed.
3. The extirpation of the tumor by Krönlein's method, with permanent preservation of the ball.
4. The extensive improvement of the paralysis of the ocular muscles after the operation.



5. The condition and distribution of the medullated fibers in the optic nerve.
6. The existence of hyaline cartilage in the nerve.

#### THE RELATION OF THE SYMPATHETIC NERVOUS SYSTEM TO FUNCTIONAL AMBLYOPIA.

H. D. Pearse (*Albany Medical Annals*, June, 1901) concludes his paper on this subject as follows:

“Our knowledge of the manifold manifestations of the disease, hysteria, in every structure of the body will not permit us to say positively that the retinal elements, the conducting channels of visual sensation, or the visual centers themselves are free from the influence of this disease. The effect upon the visual apparatus of fright, shock, emotion, mental exhaustion, over-exertion, etc., is essentially the same as in hysteria, and whether the sympathetic is concerned in this action is yet a question.

“In view of the known sphere of action of the sympathetic and of the many cases observed, which present the same conditions in the vessels of the fundus which the influence of the sympathetic produces elsewhere in the body, if the sympathetic does not influence the fundus vessels, what does? Until a more plausible source of influence is positively demonstrated, we cannot do better than accept this explanation, which is far removed from a theory.”

#### SYMBLEPHARON OPERATION.

Hugo Wolff (*Archives of Ophthalmology*) says the difficulty of making a permanent retrotarsal fold is considerable in all the symblepharon operations hitherto practiced. From a study of the anatomy, he concludes that the tendinous expansion of the superior rectus, which lies just beneath the conjunctiva, is the natural insertion of the upper conjunctival arch, and might serve as the desired fixed point of attachment for the new-formed retrotarsal fold. He reports a case, and says that in the future he will do the operation in the following manner:

After separating the adhesions until the upper lid can be doubly everted, a horizontal incision will be made in the expansion of the rectus, where the retrotarsal fold should lie. Then, in order to prevent excessive swelling, the lid will be replaced, and perhaps tampons be introduced to check the

hæmorrhage. After dissecting up the flaps the lid will be everted, so that the flaps may be sutured to the expansion of the rectus in the manner described. It would seem better to cover the tarsal wound also, so as to prevent, later, a growing over it of the transplanted flap and to avoid the checking of the movements of the upper lid.

The advantages of the method lie in the fact that all the available anatomical and pathological relations are taken into consideration:

1. The transplanted flap is attached to the fornix as a natural point.

2. From this it follows that the flap is capable of following all the changes of position of the lid with respect to the eyeball.

3. The transplanted flap is, through this fixation, better adapted to its surroundings and to its base, and therefore more readily becomes attached.

4. The expansion of the rectus exercises a constant traction on the new-formed fornix in the direction of the depth of the orbit, and thus prevents the shrinking that often occurs later.

#### SCLEROTOMY AND IRIDECTOMY COMBINED.

De Wecker (*Annales d'Oculistique*, November, 1900) recommends that an anterior sclerotomy be performed before an iridectomy is done for the relief of glaucoma. His reasons are:

1. It removes from iridectomy the dangers which it undoubtedly presents in a certain number of cases of recent glaucoma, as well as that in which the disease has progressed greatly, and in which the limit of the field of vision threatens the fixation.

2. A long experience has proven to the author that sclerotomy executed alone not only diminishes the danger of an iridectomy performed at a later date, but also enlarges the visual field; constantly pushing back its internal limit from the point of fixation.

3. In all cases in which one is tempted to perform the sclerotomy alone, the addition of an iridectomy will have the advantage of giving the greatest curative action of operative

type, and will prevent the operator from having to attribute to himself the failure to obtain from sclerotomy that which an iridectomy or a combination of the two operations might have given to the patient.

4. Finally, when by the combination of the two operations the glaucomatous condition has been cured or arrested in its march, the surgeon may feel more tranquil as to the future of his patient, the operation having been rigorously performed; and further, if, after a certain number of years, the curative effect of this double intervention should commence to pass away, he will have nothing with which to reproach himself, as he attacks the field of previous operative procedure.

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#### PAMPHLETS RECEIVED.

“The Study of Children,” by Arthur McDonald.

“Zur Anatomie des Glaukoms in Augen von uebermormaler Afenlänge,” by G. Ischreyt, M.D.

“Ueber Verfettung das Pigmentspithels in einem Glaukomatösen Aege,” by G. Ischreyt, M.D.

“The Value of Formaldehyd in the Treatment of Suppurative Otitis Media,” by H. O. Reik, M.D.

“Zur Pathologischen Anatomie des Secundaer Glaukoms nach Linsen-Subluxation,” by G. Ischreyt, M.D.

“Removal of the Superior Maxillary Bone for Sarcoma, Involving the Cerebral and Orbital Cavities and the Antrum of Highmore,” by W. B. Johnson, M.D.



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## ORIGINAL ARTICLES.

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### HELMHOLTZ AND OPHTHALMOSCOPY.

BY SWAN M. BURNETT, M.D., PH.D.,  
WASHINGTON, D. C.

IT was to be expected and it is certainly eminently befitting that in this, the fiftieth anniversary of the discovery of ophthalmoscopy, much should be thought and said concerning the ophthalmoscope, its application to practical medicine, and its influence on the development and progress of ophthalmology. Of course, one cannot think of the ophthalmoscope without at the same time thinking of Helmholtz; but, on reading some of the contributions to the literature of the subject, one is led to wonder whether the association of the two is always based upon a clear understanding either of the genius of Helmholtz or his real position as the discoverer of ophthalmoscopy.

The mentality of Helmholtz was peculiar even among the peculiarities of genius, which perhaps is only expressing in another way the isolated quality of all genius. Yet it had a rigid law of its own to which it was immutably subservient.

It was my valued privilege in 1893, when Helmholtz made his only visit to this country at the command of his emperor, who wished to show to the World's Congresses at Chicago

the greatest product of his empire, to have a visit from this noble man. During a conversation, which finally drifted into personal reminiscences, his usual modesty and excessive impersonality were thrown off guard by his interest in the subjects under discussion, and he laid bare much of his methods of work and the motives that had impelled him to investigations in so many fields of scientific research. There was thus more fully explained, as must have been apparent to any close student of his life work, much of the seemingly unaccountable transition from one field of labor to another, which had marked his career as unique, and which had possibly laid him open to criticism in certain quarters. A military surgeon, a physiologist, a mathematician, and a physicist in its broadest and most comprehensive sense, as well as a profound philosopher, he covered a field broader than had been compassed by any one that had preceded him or is likely to come after.

As he himself explained it, the development of his various activities seemed as logical as the steps he followed in any one of his single investigations.

The bent of his mind was towards the solving of problems, the tracing of connections between cause and effect by the application of a known law, or the revealing of a law which was a necessity in the general scheme. When he had done this, when he had established a law, or defined the specific status of a law under certain fixed conditions to the satisfaction of his own mental conscience, he considered his task finished, and left to others the working out of the details in accordance with the law thus discovered, as well as their applications to practical life. He was the type of the scientific seer, a revealer of principles. All else he considered as subsidiary and accessory. It was fortunate for the world that this was one of the qualities of his genius, as it saved him from frittering away his energies on matters which ordinary minds could easily deal with. That another should make fame or fortune by the application of a law he had shown the significance of, was a matter of no consequence to him. The simple, almost child-like, indifference to such things was one of the sublimest traits in his exalted character. How easy it would have been for him, conforming to the modern commercial spirit, to have patented his discovery of ophthalmoscopy, for example, or

even to have gone on and really made an ophthalmoscope to be called by his name and written a practical treatise on its use (and how well he would have done it!). But he did none of these things; it was not in accord with the law of his being, and, fortunately, he left the principles of ophthalmoscopy in all its phases so thoroughly covered that there was no chance for any one else to patent it, showing how thorough and exhaustive his work had been. He left his discovery free to all the world, and thus gave opportunity to a large group of men to attach their names, for whatever of fame it might be worth, to instruments for numberless modifications (one of them only for a handle) of the original rough experimental apparatus which he had constructed in two days from pasteboard, cover-glasses and a lens, simply to verify a principle he had worked out by *a priori* reasoning from the well-known laws of optics.

And just here is the pith of the whole matter. Helmholtz never claimed that he invented an ophthalmoscope. He did not start out in his investigations with that specific end in view. What he did have as the objective point of his studies and to which he finally attained, was the *discovery of the principles of ophthalmoscopy*. This is not a subtle, finely drawn distinction. It is fundamental of the whole question. It marks the difference between the mechanic who devises things and the philosopher who discovers principles. Other men had made instruments which might, by a wide stretch of definition, be called ophthalmoscopes—such as Cummings and Babbage—and these or other means of illuminating the eye were known to Helmholtz, as he tells us. But were any of these apparatus, in so far as they represented a scientific instrument of precision, anything more than the crude material of which they were composed? What Helmholtz was seeking for was the principle, the law by the application of which the fundus of an eye under illumination could be inspected by another eye. When that was determined the construction of the apparatus to carry out the law was easy. This he did in his simple and rather bungling way (for he is known to have been a very poor mechanician) in two days, and the demonstration was a triumphant success. An exact counterpart to this feat of *a priori* reasoning is to be found in the well-known discovery of the planet Neptune by Adams and Leverier.



It might occur to any one who has studied the discovery of ophthalmoscopy at all attentively that the significance of this fact should not need to be insisted upon at this late day. But it appears from some recent writing on the subject that we are not without that necessity, since we find Helmholtz classed and considered as an instrument deviser with Babbage, Ruete, Rekoss, Jäger, Loring, Liebreich and numberless others whose names are familiar to us on the pages of the catalogues of instrument makers. Even Dr. G. M. Gould, usually so accurate in matters of this kind, fails, in his article on the ophthalmoscope in the second volume of Norris and Oliver's System, to insist on this essential point in the evolution of ophthalmoscopy.

It is much more apparent, however, in an interesting and otherwise well-prepared paper, by Dr. Sam'l Theobald of Baltimore, on "The Evolution of the Ophthalmoscope and What It Has Done for Medicine," published in the *New York Medical Journal* for June 22, 1901. He says, in the second paragraph of his article:

"As has often happened with important discoveries and inventions, Helmholtz's contrivance of an *augenspiegel* with which to inspect the interior of the eye, first described in a monograph published in Berlin in December, 1851, seems to have been but the logical outcome of a series of interesting observations made by a number of investigators in the field of physiological optics. *But, oddly enough, the problem which these investigators, with the exception of Cummings, were endeavoring to solve, and which Helmholtz himself had in mind, was not the discovery of a means by which the background of the eye could be inspected and the pathological changes situated there recognized, but the solution of the question, why, under usual conditions, the pupil of the eye appears black, and seems to omit no light, while under certain unusual conditions it does emit light and assumes a reddish appearance.*" (Italics are mine.)

It would be difficult to find a more pronounced instance of complete misconception than is manifest in the foregoing paragraph, in so far as it refers to Helmholtz. Helmholtz knew as well as, or perhaps better, than any one who had gone before him that the illumination of the pupil was due to

the reflection of light from the bottom of the eye. This was, however, only the beginning of the problem, the point where all the others had stopped, but at which he did not propose to rest. The problem as it presented itself to his mind was somewhat as follows: If light comes from an illuminated body, why cannot that body be seen? What are the obstacles in the way, and are they insurmountable? What are the particular obstacles in the case of the eye? The eye is an optical instrument with a refracting power of its own and must exercise an influence upon all rays passing out of it as well as into it; therefore: "the observed, eye having been rendered luminous, there is only a second consideration to be fulfilled, namely, to make it possible for the eye of the observer to accommodate itself to the focal distance of the one observed."\* This is the eternal law of ophthalmoscopy, as succinctly stated as the law of gravitation by Newton. And that was Helmholtz's immortal discovery. It only remained to demonstrate its truth. This he did with the rough appliance made from materials at his hands in the laboratory: but it was sufficient to establish the existence of the principle and to reveal that which had been hidden in impenetrable darkness during all the preceding eons of time—the background of the living human eye.

Nothing could be farther from our thought than to insinuate that any of these writers desires to detract in any degree from the glory of Helmholtz's achievement. They, as well as all other men of science, know that the fame of Helmholtz is safe for all time; and we are all glad to be permitted in the mid-century celebration of his discovery to do him honor each in our degree. But we owe it to ourselves that we honor him for the right cause and in a just and discriminating spirit. We want the celebrants of the hundredth anniversary of the discovery of ophthalmoscopy to know that we of the same generation as the master appreciated his transcendent genius at its true value. The fear that they might not be so impressed is, it seems to me, borne out by this additional ex-

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\*From an address delivered in New York "On the History of the Discovery of the Ophthalmoscope," and published in the *New York Medical Record*, December 16, 1893. This was probably his last utterance on the subject, as he died soon after his return home.

tract from Dr. Theobold's paper: "And now, having reached its consideration in chronological order, let us turn our attention to the ophthalmoscope of Helmholtz. What shall we say of it? That it was the legitimate parent of all later ophthalmoscopes; that it was the first instrument with which the background of the living eye was seen *distinctly*; that Helmholtz was absolutely the first to suggest the direct method of ophthalmoscopy; and that it was he who directed the world's attention to the subject, are facts which are not open to dispute. But, having willingly accorded him this large measure of credit, I believe I do his memory no injustice in asserting *that what was essential in his ophthalmoscope was not wholly original, and that what was original was not only not distinctly essential, but was the outcome of a misconception—a fortunate misconception, as it turned out—on his part.*" (Italics are his.)

As regards the "misconception" on Helmholtz's part in employing a concave lens behind the glass plate, we may judge of how far it is in keeping with his induced law, that it must be made possible "for the eye of the observer to accommodate itself to the focal distance of the one to be observed," when we quote the next sentence of the paragraph (l. c.): "This was easily done, it being only necessary to choose a lens of proper focal distance." The word *proper* indicating that for eyes of different focal powers different lenses would be required, thus laying the foundation of ophthalmoscopic optometry, as Dr. Theobold himself states elsewhere.

As to what was original with Helmholtz in the discovery of ophthalmoscopy, we have endeavored to set forth with whatever of clearness and impartiality we could command. But Helmholtz has himself had something to say on the subject, and it would be well that we listen to him. In the same address (l. c.) he says:

"All that was original with me in the matter was that I went on to ask how optic images could be produced by the light coming back from the illuminated eye. All my predecessors had failed to put that question to themselves. They had stopped in the middle of their way instead of going on to the end. As soon as I had answered that question I saw also how an ophthalmoscope could be constructed, and it took me



only two days to do it and successfully experiment with the instrument. I say this to impress upon you how necessary and useful it is to go on to the end when investigating natural phenomena. You must not go half-way and then stand still or go back; you must finish your meditations, go to the end so that you may see clearly the full relation of the several phenomena to one another. Having followed the chain up link by link to the end; having traced the rays of light on their course from the flame into the eye of the observed, and shown what becomes of them when reflected, and how they can, by the interposition of proper lenses, be united on the retina of the observer, and thus give him a distinct view of the background of the eye observed; that was the solution of the problem; and with that, gentlemen, my story is told." And, we cannot help adding, with what sublime simplicity!

It cannot be claimed by even the most enthusiastic admirers of the genius of Helmholtz that all his work is of equal value or is impeccable. To argue so would be to contend that he was superhuman. No one was more aware of the incompleteness of some of his labors than he was himself, for no one knew better the limitations of our knowledge which bar the way towards ultimate truth. The theory of color-perception which he took over and modified from Young, has not been found to stand the test to the satisfaction of many. He himself admitted to me, who have not been able to accept it in full, that there were weak places in it, which, however, he had not found at that time were any more clearly met by other theories. His theory of accommodation has been seriously questioned as to some of its details (though not as to essential principles) by Tscherning, and we hear recently that his explanation of tone perception will probably have to be modified so far as the part played by the organ of Corti is concerned. But all this is beside the matter. The full measure of his greatness is not to be judged by this or that particular achievement. It rests upon his high personal character, his outlook on scientific questions and the methods he employed in their solution. The value of his life to succeeding generations, like that of all inspired men of the type of Bacon, Darwin, Spencer and Kelvin, is to be estimated by the informing spirit and the impulse that urged

them onward in whatever work their hands found waiting to be done. That lesson of their living was never more needed than it is to-day. Helmholtz has aptly expressed it by "not stopping half way." Alas! so many of us loiter in that "*selva oscura, nel mezzo del cammin*," not daring or caring to push onward, at any cost, to the light, only to be found at the other end.

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## LACRYMAL OBSTRUCTION AND ITS TREATMENT.\*

BY DR. JOHN J. KYLE,  
INDIANAPOLIS, IND.

ON account of the advanced ideas of the therapy of this condition and contending opinions regarding the early recovery of these cases, this subject becomes of more than passing interest to the ophthalmologist and likewise the general surgeon.

It is our intent to dwell upon those cases amenable to therapy and lesser surgical measures. As all know, certain cases, in spite of our efforts, persist in opposing every form of treatment other than the complete extirpation of the lacrymal sac and gland. The contribution of Dr. Holmes on this subject is probably the best at our disposal and needs no addition.

The embryonic formation of the lacrymal canaliculi begins about the sixth week. It is not always complete. In consequence we may find the groove partially united, many times, two or more openings presenting. These anomalous conditions are very rare and of no consequence.

The lining of the canaliculi is a continuation of that from the nose and conjunctiva, and is of a vascular nature. In consequence very susceptible to chemic and thermic changes. The mucous membrane is seen in folds and acts in conjunction with the little valve at the nasal opening as adjunct valves to prevent the regurgitation of tears, and the expulsion of air in blowing the nose—a disagreeable sensation often complained of in patency of the duct. It is to be noted that there is a constant suction downward in the duct, due to the pecu-

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liar anatomical construction and nasal breathing. This is demonstrated by the complete drainage that is often seen in malformation of the puncta and want of perfect opposition of the lids to the eye-ball, and furthermore by the presence of foreign bodies in the puncta, such as cilia especially.

The function of the duct is to carry into the nose the secretions from the lacrymal gland, conjunctiva and other glands, so beautifully described by Dr. Alt in his original contribution on "Glandular Structures of the Eye and Its Appendages," thereby freeing the cornea and conjunctiva from extraneous matter.

By extraneous matter we refer to dust, infectious material constantly floating in the air, and micro-organisms which may accumulate and are washed into the sac, thence into the nose. Many of the latter are of no consequence, while others, such as the staphylococcus pyogenes albus and aureus, and staphylococcus epidermis albus of Welsh, are frequently found; and if any slight obstruction of the ducts allow them to accumulate in the sac, if not the cause of active inflammation they may at least keep up an irritation.

When the drainage is normal the inhibition of germ life in the sac and conjunctiva is presumed to be complete. Where the natural function of the duct is interfered with patients may have simple epiphora, dacryocystitis, lacrymal abscess, or necrosis of the bones forming the canal. Many cases of acute and chronic inflammatory conditions of the lids and cornea may, if not directly caused by the stenosis of the duct, be so retarded in process of recovery that direct attention is demanded before relief of the primary symptoms is secured. The operation of opening the canaliculi of the duct in no wise interferes with the function of the duct, so we should make free to open when indicated. Epiphora, being a symptom, should not be confounded with obstruction of the duct. When this symptom presents itself its cause should be carefully investigated. Epiphora following closure of the duct should be differentiated from that accompanying coryza, hysteria, preceding tabes dorsalis, hyperesthesia of the retina, anomalies of refraction, thermic and chemic change.

*Cause.*—The cause of the alteration in the natural lumen of the duct or inflammatory changes, other than those men-



tioned, are many: during the passage of the child through the vagina or in manipulation, or fall in infancy, pressure is so made as to affect the canal. Haab speaks of hereditary predisposition as a cause. Then we have the classical extension of an inflammatory condition from the conjunctiva or Schneiderian membrane, the vascular supply being so great about the little nasal valve that the latter is more often a cause than any other. Especially is this the case in children poorly nourished or of a strumous diathesis.

It is very easy, for exfoliation of cells within the duct and mineral deposits from the tears, to become enveloped in the little folds of the mucous membrane, and eventually lead to stricture and narrowing of the duct.

Diphtheria by extension through the tear duct, and exanthematous diseases which especially involve the mucous membrane of the eye and nose, fracture of the lacrymal bone, and deflection of the septum, may also lead to obstruction.

In those subjected to the dust of cities, and in travel, the irritating effect of gases, especially natural gas, or any irritation that may cause a prolonged hyperæmia of the conjunctiva, are more susceptible to disease of the duct.

The alteration in the peculiar anatomical position of the puncta, especially seen in the old, due to old catarrhal trouble and natural loss of elasticity, may be classed advisedly as a cause. Under such conditions the puncta takes on a variety of forms, standing in cone shape, turning in or out, and may be widely expanded with partial prolapse, as it were, of the immediate canal, or so contracted and obscure that only an intimate knowledge of anatomy of the lids will enable us to find the natural opening.

*Symptom.*—In many cases the only symptom complained of for years will be the epiphora constant or upon exposure to cold winds, in others purulent inflammation with abscess will soon follow; again only a mucocoele, emptied at will of the patient by simple pressure. These conditions continue with more or less severity and variation until patient is compelled to consult an oculist for relief.

*Treatment.*—In the infant and new born, treatment promises a more speedy relief than in the old. The sooner we resort to operative measures in the young, as well as the old, the better for the patient.

The present article deals especially with sub-acute and chronic cases in which we are able to pass a probe through the duct.

The following illustrate the character of the cases usually seen in the infant:

CASE I.—Babe, five days old, distinct mucocoele of the left lacrymal sac; upon pressure contents of tumor readily expelled. The infant was, on the seventh day, anæsthetized, duct opened, and No. 5 probe passed. On the following day No. 2 probe passed and duct irrigated. The irrigation was continued for a few weeks, when complete recovery resulted. What was the probable cause in one so young? Evidently a congenital closure of the lower end of the duct.

Gunn (*Ophthalmic Review*, Feb., 1900) remarks that "the secretion, if it exists in fetal life, is very slight." In addition, I might add that as soon as the child makes its exit into the world the function of the glands of the eye, like those of the entire body, are stimulated into action, and that of the conjunctiva is usually a vigorous one. In a few days the sac and duct is filled to overflowing, if there is any nasal obstruction, and with the enforced distention the mucocoele readily develops.

CASE II.—Child, four years of age, of a strumous diathesis, an offensive catarrhal condition of the nose, with an eczematous condition about the meatus of the nose so conspicuous at times in these cases. There had occurred, some time before consulting me, an abscess of the duct and rupture, with the formation of a fistula. Fluids injected into the duct would pass through this opening. Under an anæsthetic the duct was opened and No. 5 divided probe passed and left in position for two days, with cold applications and bandages to prevent injury. After this the duct was irrigated daily, care being taken to see that the fluid, protargol, 5 per cent. solution, passed into the bony channel. A small No. 2 probe was occasionally passed. After three months child made a perfect recovery.

CASE III.—Woman, aged thirty, complained of simple epiphora, prolific at times, for years. The duct was slit and a No. 4 divided probe passed with great difficulty and considerable force. The entire duct was occluded. The probe fit as solidly into the duct as a nail in a board. Cold applica-

tions were recommended and probe allowed to remain in position for four days. It soon began to loosen, absorption being stimulated about the probe, and on the fourth day the probe was readily reinserted after irrigation. This was removed every other day for a week following, when it was removed permanently. The irrigation was continued with collyrium of the protargol. In that case there had been a gradual erosion of the mucous membrane from fungi in the duct or extension of the disease, causing stricture and ultimate obliteration of the canal.

I am sure that in the treatment of such cases as the above the radical good resulted from the continued distention of the canal, by allowing the probe to remain in position, and subsequent irrigation with the protargol.

CASE IV.—Mrs. S., aged thirty-five, strong and well nourished; diagnosis chronic dacryocystitis; duct opened and No. 6 probe passed and allowed to remain in position for three days. Removed probe, irrigated with protargol, and probe reinserted; on second day following probe removed and small lead style inserted. The style was worn for two weeks; canal irrigated daily with protargol. Patient then returned to the northern part of the State, free from further trouble.

These cases enumerated I think typical of those that present themselves amenable to simple treatment. It is very important for us to remember that the narrowest part of the canal is at the emptying of the sac into the duct, and that the knife must pass into the duct, completely dividing the stricture and even normal fibrous bands.

In the recital of the above cases I have dwelt on the use of the divided probe, which, as you see, when passed into the duct the protruding portion is readily detached. It is better, I believe, to leave the original probe in position than to remove it at once and try to insert styles, etc., subjecting the patient to additional torture. By leaving the probe in position for a few days disintegration of the bands of connective tissue and deposits are stimulated, and a permanent patency of the duct is more easily established.

The size of probes indicated in the treatment of these cases is still a debatable question, there being no positive rule in regard to size. It has been my observation that we should begin with the large probe in old cases—No. 6, if



possible—allowing it to remain in position as indicated above, freeing the duct afterwards with small probes, that is, those which pass with ease into the duct to restore the normal caliber in the duct.

The condition of the nose in all these cases must have our very careful consideration. Often surgical attention of the lower turbinate or septum is indicated.

My observation is that the careful attention to the therapy of the nose does not play the important part in the cure of stenosis of the duct that is claimed by some writers.

Where there is patency of the duct in acute cases great care should be taken in the passage of sounds for fear of unduly wounding the mucous membrane, relying more especially upon the irrigation to restore the normal calibre of the duct.

The attention of the profession in this country was in 1898 first called to the silver salt, protargol, introduced by Neisser. Since that time I have used this drug in varied solution as irrigation and collyrium, with uniform good results in treatment of cases of this character.

One word further relative to the efficiency of protargol.

Some eight months ago a patient with senile cataract and chronic dacryocystitis of left eye (the right having been previously operated on) consulted me. On pressure a great amount of yellow fluid was exuded from the puncta, at times glueing the lids together at night. The duct was opened and small probe passed. The following day I left the city and instructed the passage of probe and irrigation to assistant. In a week I returned and found the duct totally occluded, nor could I pass the sound, the assistant having failed the second day. The sac could be easily irrigated. The patient informed me that he could not remain longer in the city and demanded that I operate at once. I explained the danger of infection, but he promised to take the chance. The sac was irrigated with 10 per cent. protargol and the eye flushed with hot 5 per cent. protargol and lens removed. There followed no subsequent inflammation, and patient made a perfect recovery. The cystitis continued to trouble the old gentleman until his death, a few weeks ago.

Others have previously indicated the value of solution of protargol preliminary to cataract extraction.

## DISCUSSION.

DR. A. ALT, St. Louis.—There are a few points in which I cannot agree with the essayist. First to the main point. Dr. Kyle says that slitting the canaliculus does little or not interfere with drainage. My experience is to the contrary, and although I never in former years slit the lower canaliculus, but always the upper one (whenever this was possible), I have seen cases again and again in which no sucking up of the tears took place, although I could easily pass a large Bowman probe. From these considerations I have for about 10 years returned to the method inaugurated by Otto Becker, while I was a student at Heidelberg, namely, that of dilating the punctum with a conical dilator and then introducing a probe. I find that such a non-forcible dilatation of the punctum will admit a No. 5 and sometimes a No. 6 Bowman. As far as we can expect good results from this treatment alone, I am surely much more pleased than I was formerly when slitting the canaliculus. Of course in all of these cases the conditions of the nose should be carefully examined into, and any abnormalities be treated. As regards the injection of fluids into the tear sac, I also wish to take a different stand from the essayist. At least I would advise great caution in this direction. It certainly has occurred to others, and a number of times it has occurred to me, that the wall of the tear sac gave way under even a slight pressure, and the fluid was forced into the surrounding tissues, causing severe reaction and even abscess formation. I have in consequence given up routine syringing and apply this treatment with hesitancy only. The Theobald probes I have seen used, but never used them myself. With regard to the removal of the lacrymal sac and gland, I would prefer to be conservative. Patient, though long continued, treatment will often lead to a cure and to proper function, without having recourse to such a heroic measure. The cases in which the latter is absolutely necessary are, in comparison, but few.

DR. DERRICK T. VAIL, Cincinnati.—There are one or two points which I would like to mention in connection with this very live and interesting subject. One of these is in reference to a certain quiet form of dacryocystitis which we do not recognize or do not even suspect until it is too late. I

refer to the caseous deposit of decayed septic matter which sometimes exists in the lacrymal sac in certain aged people who are about to be submitted to an operation for cataract or iridectomy. There are no symptoms of dacryocystitis whatever. If you press on the sac the result will be negative. Should you ask them if their eyes water or if they ever had any tear-duct trouble of any kind, you will usually get a negative or unsatisfactory answer. The chronic conjunctivitis always present in these cases may entirely escape your notice, for so many aged people have those thickenings and calcareous deposits in the conjunctiva that it is easily overlooked. The only way in which caseous dacryocystitis is to be recognized is by dilating the lower canaliculus with a Galezowsky dilator and using Anel's syringe with warm salt solution, driving the piston down gently and thus allowing the solution to wash out the sac. If necrosed tissue and old spores are present in the sac, masses will be regurgitated into the conjunctival sac through the upper canaliculus.

Less than a year ago an aged lady came into my office to consult me about her left eye. She had a simple senile ripe cataract. She had had her right eye operated upon for cataract three years previously by a very able oculist of this city, but the eye was lost through panophthalmitis, and she was very loth to have her left eye operated upon, as she feared the same disaster might result. She presented neither the history nor the symptoms of dacryocystitis, but I used the Anel syringe in the manner described and found quite a quantity of thick cheesy substance in the sac. Had this condition been unrecognized and an extraction performed, the result would surely have been fatal to this her only remaining eye. Being unwilling to pass through the radical operation of extirpation of the lacrymal drainage apparatus, I simply sealed the puncta with the galvano-cautery. A short time afterward I extracted the cataract and had an ideal result. She has her sight to-day.

Another point which I would like to mention is in regard to the differential diagnosis between real purulent dacryocystitis and those circumscribed inflammations simulating it. I have seen two cases during the last year which looked exactly like acute purulent dacryocystitis, but were in reality



pseudo-dacryocystitis. The symptoms all seemed to be those of genuine abscess of the tear sac—the swelling, throbbing pain, fluctuating tumor and epiphora were all present, and yet in neither of these cases was there the slightest affection of the tear-sac proper. The trouble arose from the nose. Both of these patients had necrosing ethmoiditis, and some of the infectious material from the anterior ethmoidal cells had dissected outwards under the periosteum of the lacrymal bone, stripped up the membrane and formed a sub-saccular abscess. If this has occurred twice in my experience in a year's time it certainly is more common than one would think, and it behooves us to be on the lookout for these cases. In both of these I syringed the tear-sac through the canaliculus and the water passed down through the nose and came out *perfectly clear*. If there had been an abscess in the tear-sac it is evident that the water would either not have passed through at all, or, if so, would carry along with it the contents of the inflamed sac. In one case I curetted the ethmoid cells through the nose, and it was found that the inflammatory process there was gummatous in character. In the other case I made an outward incision, being very careful not to wound the tear-sac. Both the cases went on to perfect recovery.

DR. J. O. STILLSON, Indianapolis.—I think that there is one point on which we all will agree, and that is that these cases are the *bêtes noires* of the ophthalmologist. If there is anything that does try the patience of Job it certainly is a case of dacryocystitis which has run on until there is a stenosis of the duct. The continuing of these cases in our practice for years sometimes is enough to worry the life out of a man. The size of the probe I do not think cuts so much figure in curing the disease as the manner in which it is inserted. In regard to the slitting up of the lacrymal duct, it seems to me that common sense (with all due respect to Dr. Kyle and the gentlemen who agree with him) would suggest the unreasonableness of this procedure. The proposal to slit up a tube and then expect it to retain its suction power seems to me hardly tenable. I think if we will remember one little thing about these canaliculi it will enable us to grasp the idea with a little more reason and common sense. We all know a syphon will suck uphill and then downhill. We know the canaliculi are

like syphons, especially the upper, the lower one being more of a drainage tube pure and simple. Some years ago I abandoned slitting the lower canaliculus because I found when I did it the eye would weep in spite of everything. I found in the cases where I did succeed in slitting the upper canaliculus I would get drainage and not deprive it of its power of drawing tears out into the sac. If you use the upper you will get a better result than if you use the lower canaliculus. Like Dr. Alt, I have found by dilatation I could get in a probe pretty well where I was in the habit of slitting. I have also found in cases where ladies especially would not submit to the knife, I have been able to pass a filiform bougie (and passed it readily), and thus would get the canal open. In passing the probe through the upper canaliculus, having first employed dilatation by gradually increasing the size of the probe, you can accomplish everything that can be obtained by the slitting up of the lower canaliculus. The chief trouble in slitting the canaliculi is to get them to remain open. I have had a number of these cases where the opening would get smaller and smaller until I would have to insert a filiform bougie. Unfortunately my operations for the total extirpation of the sac have not been followed by the results recorded by the essayist. Where I have taken out the sac I have had to take out the gland also. I think the operation recommended by Dr. Holmes a good one, but I would not recommend it in all cases. I would employ it where there was a complete stenosis and the tears forming continuously.

DR. CHRISTIAN R. HOLMES, Cincinnati.—I have never been wedded to the use of very large probes. One reason is that the lacrymal canal is lined with erectile tissue of the same type as we find upon the inferior turbinated bodies. Years ago it was a common thing to see patients sitting in the office of specialists with large rubber bougies in their nares. The idea was that the pressure on the inflamed erectile tissue would cause restoration to its normal condition. We know now that this is not practical. And as virtually the same structure is present in the tear ducts as in the nasal canal, I have never adopted the forcible distension or laceration of these parts. We know that if we lacerate the parts in any way we have sooner or later cicatricial contractions following this pro-

cedure. I am content nowadays to use a moderate sized probe, and I do not slit the canal as often as formerly. There is one thing we must not forget, and that is not to commence to treat the tear duct from the wrong end. The eye is not the seat of infection except in a very small percentage of cases; the infection comes from the nose. This has been demonstrated beyond a doubt, and we must therefore not forget that the nasal end must be attended to first. A great many cases of eye trouble have been relieved by removal of hypertrophied tissue from the turbinated bodies, of polypi, opening of accessory cavities or reduction of localized inflammation. When I speak of removal of hypertrophies from the turbinated bodies I mean only to restore them as nearly as possible to the normal condition, only to remove the diseased tissue to permit free ventilation of the nares and reduce inflammation, which so often involves the outlet of the tear duct. The opening of this canal is so small that at times you can scarcely find it. In some cases it opens high up under the inferior turbinated, while in others the duct passes obliquely through the mucous membrane, emerging as much as 10 mm. farther down. It is through this end of the tube that the trouble begins in 90 per cent. of our cases.

We know that cataract cases have been lost again and again by the lack of attention to the tear sac. I will cite a case which illustrates this point in a forcible manner. One of our most able men in the West removed a cataract from the eye of a woman eighty years old. Panophthalmitis and enucleation followed. The cause of this trouble was failure to recognize an old latent affection of the tear sac. She came to me four years afterwards and desired an operation for cataract upon the other eye. By pressure there was no evidence of any trouble in the tear sac, but careful syringing brought away a small amount of cheesy material composed largely of pus-forming bacteria, a condition in which slitting, probing and washing could not absolutely guarantee against infection of the corneal wound, even if she had been willing or able to undergo the sufferings attendant upon such proceedings, which she was not. I therefore removed the tear-sac and seven weeks after extracted the cataract with perfect result. Therefore in all our cataract cases we should examine the



tear-sac to ascertain if there be any infection. I practice the radical operation, *i. e.*, complete extirpation of the lacrymal sac and glands, and have written something on this subject, reporting seventeen cases up to March, 1898; the result was perfect in all of them, and I have had a number of cases since then which I have not reported, but which have had equally good results. The cases reported were operated upon at various times during the ten years preceding the re-examination in 1898. Some of them had a single and some a double operation, and every one of them was in perfect condition. To obtain such results we must remove every portion of the lacrymal glands. It is difficult to secure all of the scattered accessory glands, but unless you do you will be surprised to see what an activity the remaining gland tissue will take on afterwards, and more or less epiphora will continue. You need not be afraid to extirpate every vestige of both the large and small glands for fear that the eye will not be properly lubricated. The minute glands of Krause, which, to the number of thirty or forty, are located in the upper lid, and a few in the lower, aid largely in supplying all the necessary secretion. Should any one of you desire detailed information on this subject, I beg to refer you to my article in the *Archives of Ophthalmology*, Vol. XXVIII., No. 1, 1899.

Dr. Vail spoke of peri-saccular abscess. I have a case which I hope to show before the other section to-morrow. He came during my absence, suffering from dacryocystitis, the phlegmonous swelling over the seat of the sac rupturing a few hours after his admission to the hospital. The nares on the same side were inflamed, discharging muco-pus, and containing a number of polypi and hypertrophied tissue on the turbinated bodies.

My first assistant, Dr. Chas. H. Castle, removed the polypi and hypertrophies, and opened the anterior ethmoidal cells. Syringing and treatment of the sac failed to stop the discharge, and he then extirpated the sac and gland. The wound over the seat of the sac healed promptly, but after several weeks inflammation appeared again where the sac had been. I found the patient in this condition upon my return to the city. The inflammation involved all the accessory cavities on the right side of the head. I opened the right frontal

sinus through a free external opening, and found the cavity very large and filled with pus and polypoid tissue. I also found the ethmoidal cells diseased, and removed their walls. On account of the duration of the operation and profuse bleeding, I determined to finish the operation at another time. Accordingly after two weeks I opened the antrum through the canine fossa, and found it filled with polypi and pus, with necrosis of the bone in the region of the tear-sac. I removed all diseased parts, including a part of the nasal wall, to give permanent ventilation and drainage to the cavity when the opening in the canine fossa should be permitted to close. The sphenoid cavity was also opened and contained pus, but not any polypoid tissue.

The point I desire to make is that the first symptoms to which this patient paid any attention were those of dacryocystitis and its complications, which after all were only secondary, and due to extension from the accessory cavities. All secretion has ceased months ago. It only remains to close what is now a small opening over the frontal sinus. This case certainly demonstrates that there are cases of dacryocystitis whose origin of infection is from the accessory cavities. Strange to relate, the patient before mentioned had never suffered from headaches or any pain or inconvenience, excepting from free discharge from that side of his nose, until the tear-sac became involved, fifteen years ago, which, however, had never given him enough concern to cause him to seek relief. All of the cavities have healed. I should not feel safe in relying upon sealing of the tear-duct if the sac was infected, because of its liability to become *unsealed* at any time, and if the sac is not infected there can be no reason for the operation.

DR. W. L. DAYTON, Lincoln, Neb.—I feel a good deal like Dr. Alt does in regard to this matter, and I cannot agree with Dr. Kyle in his assertion that slitting up of the canaliculi does not interfere with the proper drainage of the eye. I believe that it does, and for that reason for the past few years I have been probing the duct through the punctum when I could dilate it so that I could get a No. 5 probe in, and in a very large patulous punctum a No. 6. I find where there is just a slight stenosis that this often suffices. Where there is

a fibrous contraction or stenosis of the duct, and the sac is free from acute trouble, then I think it is necessary to slit up the canaliculus and use, not a No. 5, 6 or 8 probe, but a No. 10 or 12 Theobald size, and even up to No. 14. I can recall the case of a child, five years old, whom I had under treatment for some time, who had a complete stenosis. An abscess which had formed ruptured externally and there followed cicatricial stenosis. I kept the duct open with small probes for some time—several weeks—and for five or six weeks there was no improvement. I then used a No. 12 Theobald probe on this child (remember, only five years old), and in four applications of the probe the child was so much improved that it returned home. That required probably ten or twelve days. I did not repeat this operation day after day. After returning home the child remained well. Now that No. 12 probe entered the duct very nicely without much more pressure than I used to pass the No. 5, and the sac was not injured in its passage. Now in regard to the tearing of the sac so that fluids would enter the tissues. Undoubtedly tearing is frequently done in forcing a large-sized probe through the punctum even when no false passage is made, and when in such cases we afterwards force fluids in through a small lacrymal syringe, œdema and possibly an abscess results on account of the fluid escaping into the surrounding tissues. For this reason it is my practice for the first few times, after having probed and found much resistance, to use gently a very mild solution of bichloride or any other agent. As to extirpating the sac entire, I am certainly not in favor of it so long as we can establish a patency of the duct by means of large probes. It certainly requires, if this radical operation is performed, an extirpation of the lacrymal gland also, otherwise we have the epiphora continuing. The use of the large probe I have carefully investigated (of course I have not had a large clinical practice), and in my own practice I have never had reason to turn them aside for the smaller probes. For that reason I would encourage the use of the larger probes to the exclusion of the radical operation for the removal of the lacrymal sac.

DR. C. BARCK, St. Louis.—I do not believe that I can add anything new to what has already been said. The rules which guide me in these cases are absolutely conservative. In the



first place I believe that recent cases, those which have existed only a number of days or weeks, can be cured without slitting the canaliculus, and whenever we can get along without doing so this is certainly preferable. I agree with Dr. Alt and Dr. Stillson, that it is a great mistake to slit the lower canaliculus, and I have never done it. I have always emphasized the point that the lower canaliculus is the most important for the suction of the tears, and, if slit, it will not perform its function as well as in the normal state. As to probing and injections, I think that the force admissible is largely a matter of experience. We know that too forcible probing is not to be done. I believe that injections are possibly more dangerous than the use of the probe, simply because when you use the injection and rupture takes place you cannot tell how much of the fluid escapes into the adjacent tissues, and cannot control the exact amount. I have discarded the use of the very large probes; I hardly ever go beyond a No. 10 and as a rule not higher than a No. 8 or No. 9. As far as the radical operation is concerned, I believe it ought to be limited to such cases where there is an impermeable stricture or osseous closure. In a number of very obstinate cases, where treatment extended over one year, and where I had at first thought of extirpation of the sac, the result was a complete recovery, observed for years. The cases in which I have extirpated the lacrymal sac and gland have been those which were brought about by injury or disease of the bone, resulting from syphilis, etc.

DR. M. F. COOMES, Louisville.—I would like to add a few remarks to what has already been said. In regard to rupture of the sac, I have seen it occur time and time again. Fortunately in my cases I have not had an abscess result from the escape of fluid into the tissues, possibly because in the early stages I used antiseptic solutions. In regard to slitting up the canaliculi, I think Dr. Kyle will find out in years of experience that the less often he does this the better off his patients will be. There is no question but that the function of these parts is impaired by such a procedure, but at the same time in some cases we are forced to do it. I have found in treating chronic abscesses of the sac there is nothing like good free drainage, and in treating these strictures to adopt

the means for the fullest distension in the beginning, passing in the large probe and keeping the canal open if possible. In regard to the extirpation of the sac, I am not ready yet to accept the doctor's radical treatment. In all my experience of twenty-five years I have never had occasion to extirpate the sac. I further think when you extirpate the sac the lacrymal gland will have to come out. If you do not do this you will certainly have a constant epiphora. Unless you remove the gland you have simply gotten rid of one part of the trouble. I think Dr. Holmes after a few experiences will not feel like extirpating so many sacs as he does now.

DR. J. J. KYLE, Indianapolis.—I do not believe I have very much of anything to add to what has already been said. I have enjoyed the discussion very much, and feel that I shall be a little more conservative in slitting the duct after this. I think the conservative passage of the probe (a No. 2 or No. 3) into the duct will possibly do no harm and its use will sometimes clear up the diagnosis.

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#### PAMPHLETS RECEIVED.

“What Routine Shall We Adopt in Examining the Eye Muscles?” by A. Duane, M.D.

The Results of Surgical Treatment of Inflammation of the Mastoid Process,” by E. B. Dench, M.D.

“Notes on the Bacteriology of the Conjunctival Sac and Its Bearing Upon Surgical Procedure,” by P. Ch. Jameson, M.D.

“The Importance of the Early Recognition of an Inflammation of the Middle Ear by the General Practitioner,” by E. B. Dench, M.D.

“The Treatment of Chronic Otorrhœa. Two Cases of Intra-Cranial Infection Following Middle-Ear Suppuration,” by E. B. Dench, M.D.

“Report of Three Cases of Ligation of the Internal Jugular for Septic Thrombosis Following Purulent Otitis Media; Recovery,” by E. B. Dench, M.D.

# MEDICAL SOCIETIES.

## PROCEEDINGS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.\*

*Thursday, June 13th, 1901.*

G. ANDERSON CRITCHETT, M.A., F.R.C.S.E., President,  
in the Chair.

### STUDY OF INFLAMMATORY EXUDATES INTO THE VITREOUS.

DR. LESLIE BUCHANAN read a paper on this subject, which was illustrated by lantern slides made from his preparations. He said that the exudation into the vitreous in cyclitis was, in the first instance, formed in the pars ciliaris retinæ, and more especially in the non-folded portion of it, but soon the folded portion, the fibrous stroma of the ciliary body, and the retina took part in the production of the inflammatory exudate. The exudate into the vitreous body was seen in the fresh specimen fixed in 5 per cent. formalin as opaque white flocculent masses. It might be divided into zones, which from the ciliary body inwards were as follows, namely: (1) a fibrous zone; (2) a fibrinous zone; (3) a fibrino-cellular zone. The formation of fibrous tissue began very early, probably about the eighth day. The formation of fibrous tissue was accomplished by the action of certain oval nuclei on the fibrin, ending in the formation of fibrous tissue. The cells which formed the exudate at first formed masses on the non-pigmented layers of the pars ciliaris retinæ and were of various characters. That these cells were not all derived from the endothelium was shown by bleaching and restaining, when many cells might be seen migrating through the pigment layer to the free surface. In the retina also there was evidence of migration. The cells thus exuded passed to a greater or less depth into the vitreous. Here they proliferated rapidly. In the more superficial portions of the exudate degenerated protoplasm might be seen not having a nucleus, though no instance of mitosis had been seen. Fatty degenera-

\*British Medical Journal.



tion followed, and further migration of nuclei took place, these finding their way back by the lymphatics. A fibrinous cyclitic membrane was thus left infiltrated with fat, and highly vascular. The fat was absorbed, the blood vessels were gradually constricted, leaving a comparatively avascular fibrous tissue layer, by the contraction of which the eye was distorted and destroyed. A further change was the formation of true bone. Spherical globules were formed, which grew, forming a solid mass penetrated by blood vessels, and finally converted into bone. The bone corpuscles were probably fibrous tissue corpuscles. The cavities of the bone were lined by osteoblasts containing blood vessels, fat, and crystals of fatty acids.

#### PARALYSIS OF THE THIRD NERVE WITH UNUSUAL COMPLICATIONS.

MR. MULES reported this case: The patient was a man aged 75 who, feeling ill on May 4, 1900, proceeded to treat himself on the following original plan: He first took half a box of "wind pills," together with a variety of other sorts. Feeling no better he took two ounces of a solution of tartar emetic. The vomiting having ceased two days later and feeling his head very sore, he applied to his forehead and scalp various applications chiefly used for veterinary purposes. He became so much worse that Mr. Mules was sent for. Incisions were then made into the œdematous scalp and ten grains of calomel were given. The following day (May 10th) the patient was better, though sloughs covered the scalp and there was severe pain. It was then noticed that there was paralysis of the third nerve. On May 27 the scalp had healed, but the paralysis remained.

The author thought that the cause of the trouble was herpes of the fifth nerve. This was the cause of the patient feeling ill in the first place. The vesicles were never seen on account of the applications which caused so much destruction of tissue. As a sequel to the herpes paralysis of the third nerve ensued.

MR. DEVEREUX MARSHALL referred to an exhaustive paper on herpes by Head and Campbell, published last year in *Brain*.

DR. ALDEN TURNER saw no reason why the third nerve

should not be affected and did not consider motor paralysis uncommon after an attack of this disease.

MR. MARCUS GUNN asked if there had been an injury, and mentioned a case in which an attack had definitely followed such.

MR. JOHNSON TAYLOR asked if any vesicles had been seen on the cornea, and in reply Mr. Mules stated that none had been observed.

#### DOUBLE SYMMETRICAL OPACITIES OF THE CORNEA.

MR. MULES recounted this case: The patient, who was aged 70, developed opacities of the cornea eight years ago. These were symmetrical and brownish in color and had been increasing. The apices were at the pupils and their bases at the corneal margin. A vertical slit was present in each. One was removed by scraping, but the other was removed far more easily by means of a fine knife inserted beneath it. The result was quite satisfactory.

THE PRESIDENT said he had watched a similar case for seven years, but it had not reached the pupil and he had done nothing to it at present.

#### ERYTHROPSIA.

DR. W. H. A. RIVERS described a form of erythropsia which appeared, after exposure to high illumination, as a well-defined deep red border round a white object. The phenomenon might be regarded as an intermediate link connecting the ordinary forms of erythropsia with the transient red border seen round a white object which had been described by Shelford Bidwell. It was shown that Bidwell's phenomenon, "border erythropsia," the artificial erythropsia of Fuchs, and clinical erythropsia such as occurred after the removal of the lens, were probably closely related to one another. The causation of erythropsia in general was considered, and reasons were given for believing that all forms were due to the coloration by the light stimulating the retina by blood, and this might be produced in several ways: (1) by transmission through the sclerotic, etc.; (2) by internal reflection from the lateral walls of the eyeball; (3) by transmission through the anterior layers of the retina. The experiments of Birkhoff showed that erythropsia might occur when light was pre-

vented from passing through the peripheral part of the eyeball, but these experiments did not exclude the third of the sources above mentioned.

Remarks were made by Dr. Edridge-Green and Mr. Swanzy.

DR. RIVERS briefly replied.

#### EYE INJURY DUE TO LIGHTNING IN SOUTH AFRICA.

MAJOR M. T. YARR contributed two cases. He stated that while encamped in the Orange River Colony in March, 1900, they were exposed to a violent thunderstorm. (1) Major H. had his tent pole struck; at the same time he felt tingling down the right side of his head and right arm. He became partly unconscious, but soon recovered from this, but the tingling persisted for some days. Four months later he discovered accidentally that he was practically blind in the right eye, and was invalided to the base hospital. When seen by the author in August, 1900, he could only count fingers at three feet. There were several large hæmorrhages, evidently not of recent date, and patches of atrophy in the retina in the region between the superior and inferior temporal veins, with a few scattered and much smaller hæmorrhages in the periphery, some engorgement of the veins, pallor of the disc, and contraction of the arteries. The left eye was normal. (2) Richard C., aged 25, a private in the Second Royal Berkshire Regiment, was employed on telephone duties at Belfast, Transvaal. On October 18th, 1900, he was sitting at his "operating table" during a storm, when his instrument was struck by lightning. He fell, and on regaining consciousness he was unable to see. He had suffered no bodily injury, but his instrument was bent. The next day he could distinguish between light and dark; about a week later he had perception of light in both eyes, could count fingers with the left, and the tension was normal. There was a large retinal detachment in the right eye, running in wavy whitish lines inferiorly. The left eye also showed a large detachment, but spread over a wider area. The vision had previously been quite good.

#### CARD SPECIMENS.

The following card specimens were shown: Dr. A. Bronner: Growth of the Conjunctiva from an Old Man. Dr. A.



A. Hudson: An Apparatus for Performing Massage on the Eyes by Means of a Vibrating Hammer. Major H. E. Drake-Brockman: A New Eye Speculum. Mr. J. H. Fisher: Sub-retinal Cystic Swelling in the Center of the Fundus. Mr. Inglis Taylor: Tubercle of the Iris. Mr. Richardson Cross: Congenital Fibro-Vascular Tumor Removed from the Eye. Mr. Stanford Morton: Double Coloboma of the Lens. Mr. Doyne: Hole in the Retina.

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PRELIMINARY PROGRAM OF THE THIRTY-SEVENTH  
MEETING OF THE AMERICAN OPHTHAL-  
MOLOGICAL SOCIETY.

*Held on Wednesday and Thursday, the 17th and 18th of  
July, at the Pequot House, New London, Conn.*

1. Report of Committee on Supplementary Reports of Cases which have been previously reported to the Society. Drs. Jackson, DeSchweinitz and Williams.

2. A Modification of Tscherning's Ophthalmophakometer. Dr. Howe.

3. An improved Lantern for Detecting Color-Blindness, to Supplement the Deficiencies of the Wool Tests. Dr. Wm. Thompson.

4. Report of Committee on Standards and Methods for Examination for Acuteness of Vision, Color-Sense and Hearing. Drs. Williams, Wm. Thompson and Dennett.

5. Contribution to the Pathology of Vascular Growths into the Vitreous, with Demonstration of a Specimen. Dr. Marple.

6. Cyst of the Vitreous Body at the Head of the Optic Nerve. Dr. Koller.

7. On Adenoma of the Meibomian Glands, with Colored Illustrations of the Clinical Picture and Microscopic Demonstrations of the Original Tumor and its Development Into Adeno-Sarcoma and Adeno-Carcinoma. Dr. H. Knapp.

8. Adenoma of the Lacrymal-Caruncle, with the Report of an Additional Case. Dr. Veasey.

9. A Case of Melanotic Giant-Cell Sarcoma of the Lim-

bus, Associated with an Implanted Secondary Growth in the Lower Lid. Drs. O. F. Wadsworth and Verhoeff.

10. Double Panophthalmitis of Septic Origin. Dr. Jackson.

11. A Study of Six Cases of Metastatic Choroiditis Occurring in the Course of Pneumonia Due to "Grippe." Dr. Bull.

12. A Case of Primary Tuberculosis of the Iris (with Microscopic Specimen). Dr. Hepburn.

13. Histological Description of an Eyeball with Unusual if not Unique Lesions in the Inner Nuclear Layer of the Retina which Clinically Simulated Glaucoma. Dr. DeSchweinitz, with collaboration of Dr. E. Shumway.

14. The Post-Operative History of Fifty Cases of Simple Chronic Glaucoma. Dr. Bull.

15. Concerning the Treatment of the Apparently Unaffected Eye in Monocular Glaucoma. Dr. DeSchweinitz.

16. Extraction of a Large Foreign Body from the Anterior Chamber with Complete Preservation of Vision. Photograph of the Foreign Body in Situ. Dr. St. John.

16 $\frac{1}{2}$ . Case of Foreign Body in the Eye Eighteen Years. Three Attacks of Uveal Inflammation Without Loss of Vision. Dr. A. A. Hubbell.

17. Results of X-ray Diagnosis and of Operation in Injuries from Foreign Bodies. Dr. Sweet.

18. A Case of Cystic Growth (not Traumatic) in the Orbit, Complicated With Exostosis of the Frontal Sinus. Dr. Andrews.

19. Thrombosis of the Cavernous Sinus. Dr. Jackson.

20. Report of a Case of Injury of the Orbit, with Paralysis of the Oblique Muscles; Complete Restoration of Function of the Muscles Following Operation on the Orbit. Dr. Andrews.

21. A New Instrument for Determining the Position of the Axes of the Eyes. Dr. Williams.

22. Dislocation of the Lacrymal Gland. Dr. Mittendorf.

23. Report of Two Cases of Removal of Lens in Excessive Myopia. Dr. Minor.

24. Rapid Changes in Refraction Occurring in the Eyes of Diabetic Parents (with Case). Dr. Carpenter.

25. A Case of Hunterian Chancre of the Caruncle Followed by Secondary Symptoms. Dr. Hepburn.

26. An Unusual Case of Chronic Inflammatory Hypertrophy of the Lid Margin. Dr. Cheney.

27. Anophthalmos Congenitus (Two Cases). Dr. Claiborne.

28. A Note Concerning the Ocular Conditions in Anchylostomiasis Duodenalis. Dr. Hansell.

29. Corneal Loupe With Oblique Illumination. Dr. Koller.

30. The Electric Light. A Study of the Best Means for Softening the Light with a Minimum Loss of Illumination. Dr. Andrews.

31. A New Incandescent Electric Lamp for Ophthalmoscopic Examinations, and for Use in the Lantern for Testing Color-Sense. Dr. Williams.

32. On the Frequency of Asthenopia, Especially in America. Dr. Howe.

33. Two New Instruments. Dr. Theobald.

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#### PAMPHLETS RECEIVED.

"Post-Febrile Insanity and Its Treatment," by F. P. Norbury, M.D.

"The Relation of the Sympathetic Nervous System to Functional Amblyopia," by H. S. Pearse, M.D.

"Report of a Different Operative Method in the Treatment of Trachoma, with Notes Upon the Construction of an Instrument Devised for the Purpose," by P. Ch. Jameson, M.D.

"A New Clinometer for Measuring Torsional Deviations of the Eye, Delineating Paracentral Scotoma and Metamorphopsia and Detecting Simulation of Blindness," by A. Duane, M.D.

"Report of the Committee of the American Ophthalmological Society on Standards and Methods of Examining the Acuteness of Vision, Color-Sense and Hearing, for Railway and Marine Service."



## ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### THREE CASES OF CATARACT FROM LIGHTNING STROKE.

Josef Preindlsberger (*Wiener Klinische Wochenschrift*, March 28) reports three cases. In two, cataract developed in both eyes two days after the accident. One was a boy, 13; the other 11 years of age. Both were rendered unconscious; the elder for a short time only; the younger for two days. In both cases linear extraction was performed with success. The third case was a man, aged 24, who had been struck by lightning six years before. He was unconscious for ten minutes. A cataract developed in the right eye some months later. The author performed extraction with iridectomy with success.

### PTERYGIUM OPERATION—METHOD BY SUBCONJUNCTIVAL ANTERO-INFERIOR FIXATION.

John O. McReynolds (*Ophthalmic Record*, May) finds the method of transplantation much more satisfactory than any method of simple abscission. After a thorough trial of the various methods of transplantation he has adopted the following:

1. "Grasp completely the neck of the pterygium with a strong, narrow fixation forceps.
2. Pass a Graefe knife through the constriction and as close to the globe as possible, and then with the cutting edge turned toward the cornea shave off every particle of the growth from the cornea.
3. While the pterygium is still held, divide the conjunctiva and sub-conjunctival tissue along its lower margin with a pair of slender straight scissors, commencing at its neck and extending toward the canthus, a distance of one-fourth to one-half of an inch.
4. Still holding the pterygium with the forceps, separate the body of the growth from the sclera with any small non-cutting instrument.
5. Now separate well from the sclera the conjunctiva lying below the oblique incision made with the scissors.
6. Take black silk thread armed at each end with small curved needles and carry both of these needles through the apex of the pterygium from without inwards, separated from each other by a sufficient amount of growth to secure a firm hold.
7. Then carry these needles downward beneath the loosened conjunctiva lying below the oblique incision made by the scissors. The needles, after passing in

parallel directions beneath the loosened lower segment of the conjunctiva until they reach the region of the lower fornix, should then emerge from beneath the conjunctiva at a distance of about one-eighth to one-fourth of an inch from each other.

8. With the forceps lift up the loosened lower segment of conjunctiva and gently exert traction upon the free ends of the threads, and the pterygium will glide beneath the loosened lower segment of the conjunctiva; the threads may then be tied, and the surplus portions cut off, leaving enough to facilitate removal after proper union. It is important that no incision should be made along the upper border of the pterygium, because it would gap and leave a denuded space when downward traction is made upon the pterygium. The elasticity of the conjunctiva is such that when this downward traction is exerted on the head of the pterygium it becomes thinned and smoothly applied to the sclera, corresponding to the former site of the body of the growth, and the margin of the conjunctiva coincides accurately with the sclero-corneal junction. Thus, when the operation is completed and the speculum removed, the stitches are hidden by the lower lid and the only denuded area is on the cornea. The former site of the body of the pterygium is covered by thin and comparatively non-vascular conjunctiva. What blood-vessels remain are directed downward and hence do not tend to encroach again upon the cornea, while the vascular activity is concentrated beneath the lower lid, where it is not only removed from view, but protected, and atrophy surely and naturally follows. The corneal wounds heal quickly and the thin conjunctival tissue becomes closely adherent to the sclera. After a few days the single stitch can be removed and the old pterygium be found firmly adherent to the sclera and hidden beneath the loosened lower segment of the conjunctiva. If the head of the pterygium is very large it may be cut off before the growth is drawn down. The general direction of the traction thread is vertical, but it is usually best to incline them in such way that they will emerge from that part of the conjunctiva that lies below the cornea. This is often necessary so as to permit the denuded sclera to be completely covered by smooth conjunctiva, and if the conjunctiva should slightly overlap the cornea at any point it can easily be trimmed away without interfering with the desired result."

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## ORIGINAL ARTICLES.

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### ON THE FREQUENCY OF ASTHENOPIA, ESPECIALLY IN AMERICA.\*

BY LUCIEN HOWE, M.D.,  
BUFFALO, N. Y.

WE have long since agreed that the term asthenopia shall be used to designate that familiar group of symptoms which includes discomfort or pain for near work, with blurring of vision and perhaps some injection of the conjunctiva or lachrymation. But while we find this term convenient, it is also indefinite, especially so when we do not keep in mind the variety of asthenopia, whether accommodative, muscular or central.

I. Remembering thus the general character of the term, the first point to which attention is here directed is, that cases of asthenopia form one of the largest class we are called upon ordinarily to treat. Although this fact is so obvious, it is nevertheless difficult to demonstrate by figures, because the classification of diseases in institutions seldom or never include the term asthenopia. It is possible, however,

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\*Address of the President of the Medical Association of Central New York, at the Annual Meeting, 1901.



to approximate the number; for we know that nearly always asthenopia is associated with anomalies of refraction and of accommodation and with muscular insufficiencies, and therefore the proportion of these cases gives with certain modifications an indication as to the frequency of asthenopia. It is true that nearly all myopes and very many hypermetropes have no trace of asthenopia. But making allowance for these and also for those whose discomfort is trifling, there still remains so large a proportion of cases of really annoying asthenopia as to make that group, in every enlightened country, next in size to diseases of the conjunctiva and cornea. Indeed it is generally recognized that in private practice among the educated the cases of asthenopia constitute by far the largest class.

II. Again, it is apparently the fact that the more annoying types of asthenopia, the muscular and central forms, occur more frequently in the United States than elsewhere.

As the term asthenopia is elastic, it would also be difficult to state the frequency of such cases in figures. I am not aware that any attempt has been made to do so; but it is an observation familiar to those who have had opportunities to compare the hospital or private practice in this country with that of England, France or Germany.

It is not intended to state that the average American is not as strong in other respects as his brother across the Atlantic. The contrary has been shown, as is well-known, by Dr. P. C. Knapp and others. Dr. H. P. Bowditch has found from measurements of the American school boy that he is as good a physical type as the boy at Eton or Rugby. Dr. B. A. Gould in like manner found that our soldier was the physical equal of the European. Our athletes bring back at least their share of prizes from abroad, and our yachtsmen have held the cup for over fifty years.

But, on the other hand, Javal has expressed the opinion to Roosa that asthenopia is more common in New York than in Paris, and this also held by Bull of Paris, whose extensive practice first on one side of the Atlantic and then on the other has afforded unusual opportunities for observation.

Important evidence on this point is furnished by Dr. George M. Beard in a monograph on *Nervous Exhaustion* and

Neurasthenia, published so long ago as 1879. Most of the cases which he described are really types of asthenopia.

In the first chapter he says: "There is a large family of functional nervous diseases which are increasingly frequent among the indoor classes of the civilized countries, and they are especially frequent in the northerly and easterly parts of the United States."

The observations which compose the greater proportion of his monograph are carefully made and systematically arranged, and although some of the views must necessarily be modified by the light of subsequent investigation, the conclusions which he reaches seem to be entirely warranted.

He observes that the geographical distribution of this class of diseases is not everywhere the same. They appear to be less common in Germany and Russia, Italy and Spain; more frequent in France, and still more frequent in England. Above all, he considers neurasthenia to be an American disease, and in that definition he includes, as before remarked, what we all recognize as forms of asthenopia.

The late Dr. Henry D. Noyes of New York presented, as long ago as 1876, an analysis of 1079 cases which came under his observation—rather a large number even for an industrious practitioner.

Personally, as I compare the experience of twenty-seven years' practice here, and that obtained during ten visits among our confrères in England and on the continent, the impression becomes stronger, as before remarked, that such cases are decidedly more frequent in the United States. Moreover, it is natural that this should be so, for the following reasons:

(a) *Carelessness.*—Americans use their eyes more under unfavorable circumstances than is done elsewhere. Our newspapers and periodicals are many times more numerous and larger than in any European country. The print is often poor; we read more when travelling, or wherever we happen to be in our few minutes of leisure, too frequently regardless of proper illumination or other requisites for the natural use of the eyes.

(b) *From causes affecting the nervous system.*—It is a saying with the Europeans that while he makes money to

live, the American lives to make money; and however that may be, the hurry and mental strain of our American life makes greater demands upon the nervous system than does the more quiet routine of life elsewhere. This fact also is so well recognized as to require no comment.

(c) *From causes affecting the digestive tract.*—It is probable that this is of some importance. Americans not only eat more meat than do Continental nations, but we do not take time to masticate it properly, and there may be an insufficient amount of fluids ingested as compared with that in wine or beer drinking countries.

The fact that dyspepsia in various forms and appendicitis are so common in America, also indicate that there is some factor here which exerts an unfavorable influence upon the digestive tract and indirectly thus upon various organs.

III. Even if there should be a doubt that annoying forms of asthenopia do occur more frequently in the United States than in Europe, there is no doubt concerning another phase of this subject, which is, that a larger number of these asthenopic persons do apply for relief in the United States than elsewhere. This is especially apparent to German or English ophthalmologists who are so situated as to have a clientèle including many Americans.

Thus, one of our most honored and illustrious confrères, located in a German university town, which happens to be also a resort for Americans, said to one visitor: "Your American eye doctors frighten patients into glasses, and the patients frighten themselves about them." In spite of an opinion from so distinguished an authority, it would seem that there are other causes which induce patients in America to seek relief sooner than elsewhere. These are:

(a) The mental attitude of the average American in regard to glasses. He desires to see as distinctly as he can and prefers the inconvenience of glasses to any discomfort from asthenopia. This is true of American women also, young or old. This is even true, to as great an extent as is possible, of those other women of rather uncertain age, who naturally fear that the possession of a pair of glasses indicates that they are approaching middle life.

Especially is this objection lessened when the optician



assists in the self-deception by making the eye glasses becoming or even ornamental.

(b) The average American practitioner is better supplied with appliances for detecting the causes and varieties of asthenopia than are his confrères in Europe.

In addition to the all-important test case, we find now almost invariably that he is equipped with an ophthalmometer, with a phorometer, together with other appliances for testing the static and dynamic conditions of the muscles, and occasionally has appliances for measurement of relative accommodation, which in Europe are to be seen only in a physiological laboratory.

When an American ophthalmologist visits his professional brethren in their offices in Germany, he is struck by the lack of appliances for properly testing this important class of cases.

(c) American ophthalmologists use these appliances to make more accurate corrections of ametropia and of muscular anomalies than is customary in Europe.

It may seem strange that the countries which have produced Helmholtz, Graefe, Donders, and Javal should not also be those to carry into practice the important lessons taught at home. Apparently, however, that is not the case.

It required some time for American ophthalmologists as a class to be convinced that the correction of half or even a quarter of a dioptré of astigmatism was of any importance. Gradually, however, the majority have reached that conclusion. We have learned that attention to the details of ametropia and of heterophoria, apparently insignificant, make all the difference, in some few instances at least, between persistent headaches and perfect comfort.

(d) The skill of the optician assists to no small degree in the treatment of these cases of asthenopia. In nearly all of our cities of any considerable size we now find one or more opticians who themselves grind spheres and cylinders accurately and promptly, setting the glasses in frames which are neat and comfortable.

They have long ago learned to make bifocal lenses, so that certain hypermetropes or myopes who have passed middle life find such lenses one of the essentials of comfortable existence. And yet, even this simple appliance is exceptional in a country

where the theory of optics and the skill of the workman otherwise is as far advanced as in Germany. During the last year the writer of this, who wears bifocal lenses, happened to attend the meeting of the German Ophthalmological Society in Heidelberg. Such glasses were so unusual as to attract attention, and several of the members did not hesitate to express their curiosity by inquiries concerning them.

We must conclude, therefore, that cases of asthenopia form not only one of the largest group which we are called upon to treat, but that the proportion of severer cases is somewhat larger in America than in other countries, this being due to the injurious effects of our national habits upon the eyes themselves, upon the nervous and digestive system.

Also it seems quite certain that a larger proportion of all the cases of asthenopia apply for relief in the United States than do so elsewhere, the reasons of this being the comparatively slight aversion of patients to the use of glasses; to the fact that the average American ophthalmologist is better equipped than his foreign confrères for detecting errors of refraction and of muscular balance; that he takes pains to correct even small variations from the normal condition; and that the American optician has much more complete appliances for grinding glasses accurately and fitting them satisfactorily than has the average optician of any other country.

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## DACRYO-STENOSIS WITH ABSCESS.\*

BY DR. J. F. REYNOLDS,  
MT. STERLING, KY.

DACRYO-STENOSIS with abscess is the most important disease of the lachrymal duct. Not only does it give rise to grave affections and sometimes fatal septicemia, but in consequence of its tendency to cause congestion of the conjunctiva and appendages of the eye, it undermines the whole nervous system and unfits the patient for the ordinary avocations of life. It is nearly always secondary to dacryo-cystitis, the development of which is favored by foreign substances, as dust, smoke, irritating gases, etc.

Blennorrhœa adultorum and blennorrhœa neonatorum play a very important part in the causation of this disease, for they almost invariably leave cicatrices sufficient to cause stenosis of the duct, which is sooner or later followed by abscesses. According to "Fuchs," heredity undoubtedly causes a small per cent. of these cases, from ill-formed noses, which are handed down from one generation to another. It is often caused from hypertrophy of the inferior turbinated, especially in those who suffer from specific troubles, either acquired or congenital, and from all nasal affections where the pathogenic fungi enter the nose. It occurs in all classes and at all ages, but chiefly in men of mature years, and especially employes of our various factories and railroad systems. It is by far the most frequent between the age of twenty-five and fifty years. Males are attacked more often than females, and women of the higher classes who are not subjected to hard labor rarely suffer from this disease. Chronic alcoholism is a causative factor, for the reason that it produces chronic congestion and catarrh of the lachrymal duct, and thickening of the mucous membrane and connective tissue. Necrosis of the lachrymal and nasal bones is also a frequent cause of the abscess. Its course is a very rapid one. Usually on the third or fourth day we can detect pus by palpation and the discoloration of the skin.

After a brief mention of some of the most important symptoms, we will hasten on to the consideration of the treat-

\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.



ment. (1) Epiphora is almost the first symptom to appear; (2) redness and heat; (3) swelling, at first hard and painful on pressure; (4) great œdema of the lids and surrounding tissue; (5) congestion of the conjunctiva with chemotic patches; (6) dryness of the schneiderian membrane and the corresponding side of the nose seems to be stopped up; (7) non-permeability of sac; (8) fluctuation makes its appearance on the third or fourth day; (9) lachrymal sac can easily be outlined after it is distended with pus; (10) in order to ascertain as to whether or not there is complete occlusion of the duct, it is best to inject a few drops of a normal salt solution into the lower canaliculi with a small lachrymal syringe, and if there is an opening it will enter the nostril of the corresponding side.

The treatment should be directed in two ways, viz.: to kill the micro-organism and remove the obstruction. In the beginning of the abscess, that is during the first two or three days, we should use abortive means, such as irrigation and syringing with antiseptic solutions, the use of astringent fluids, of which a one per cent. solution of silver nitrate acts admirably; ice bags alternated with hot applications are beneficial when the patient will tolerate them.

The Bowman probe should rarely be used unless it is in the hands of one skilled in its use, and then the tissue should be thoroughly cocainized in the region of the duct by injecting the cocaine into the canaliculi with a small syringe. If the stenosis is marked, the duct and surrounding tissue should be anæsthetized by hypodermic injection of a four per cent. solution of cocaine, or better still the use of a general anæsthetic; for Dante has never pictured the horrors of the lost souls with more anxiety and dread than these poor sufferers show when they are about to be subjected to this painful little operation. If the stricture is hard and of long standing, the probe should not be forced through without first cutting it, and never used when the inflammation is very great, for by its use we are liable to make a false passage and produce a solution of the continuity of the mucous membrane, which leads to the formation of cicatrices and impairs the function of the tear passage. Injection of medicine into the canaliculi is not without its bad effect on the future course of the dis-

ease, for it acts as an irritant to the lining mucous membrane, increases swelling, extends suppuration and thereby prolongs the duration of the disease, and makes an unfavorable prognosis. The radical operation should be performed as follows:

Make an incision through the skin and subcutaneous tissue—beginning at the center and at the lower margin of the tendo-oculi—extending downward and outward about one inch, so that the lower part of the incision will be on a line with the inner schlero-corneal border of the normal eye; dissect back the skin and subcutaneous tissue, and with a pair of strabismus scissors make a complete dissection of the lacrymal sac and duct from where the latter enters the osseous canal up to the bifurcation of the canaliculi. The remaining portion of the duct down to the pituitary membrane should be incised in several directions by means of a narrow knife of the shape of a right angle triangle, as recommended by “Still-ing,” by allowing the knife to move up and down several times, rotating it on its axis after the sac and nasal duct have been completely removed, take a medium sized Bowman probe, pass it into the canaliculi through the puncta lacrymalis until it is felt in the wound by the tip of the finger, then place the point of an electric cautery probe, about the same size, in apposition with Bowman’s, gradually withdraw the latter, at the same time following it up with the cautery until it is seen in the puncta, turn on the electric current until this probe reaches a white heat, at the same time guarding against any injury to the eyeball and surrounding tissue. After having carefully removed it we have a wound that is absolutely free from all germs and their toxines and a tube without any lining mucous membrane, the sides of which readily come in apposition and heal by granulation; therefore we have substituted for these infectious canals a cicatricial tissue that is firm and healthy, and thereby have destroyed the incubator for all bacilli that so easily migrate to the inner canthus of the eye; besides, these patients are permanently relieved from the unpleasant task of squeezing the tears from the mouths of the canaliculi, as usually happens when the ducts are allowed to remain open. I am a great believer in palliative treatment and conservative surgery, but I think it out of place in a case of dacryo-stenosis of long standing with

a recently developed abscess; for in every case of this character we should neither delay nor hesitate to perform the radical operation as soon as the diagnosis is made, and even before the abscess has ruptured spontaneously or opened with the knife. If the sac is fully distended with pus we can in a great many cases, by careful dissection, remove it without rupturing the sac, which gives the operator a much better chance to make a complete removal without injuring too much of the surrounding tissue. There should be a total extirpation of the lacrymal gland, as recommended by "Dr. Holmes," in almost every case where the duct and sac have been removed, especially in those persons who lead an outdoor life and are constantly subjected to the wind and dust; for if this gland is not removed these patients are annoyed for life by tears and conjunctivitis caused by the constant wiping the eyes. I do not claim anything new in the cautery treatment, for the application of cauteries in their various ways in this operation are as old as the surgery of the sac itself; but the results obtained in the cases upon which I have operated by above described method convinces me that the application of the cautery into and through the canal fulfills all the requirements. One advantage it enjoys over the slitting method practiced by some is the conservation of symmetry and form to the palpebral margin, which results could not be so easily or surely obtained after an open wound. I quote you three cases which have come under my observation during the past eighteen months:

CASE I.—T. F., æt. 58, male, applied for treatment November 19, 1899, with the following history! Was kicked on the nose by a horse June 18, 1890; had considerable redness, pain and swelling for several weeks afterwards. When the inflammation subsided, the lacrymal duct was stenosed and the tears were continually overflowing, causing no little inconvenience. In 1896 the sac abscessed, at which time he consulted a reputable specialist, who operated and removed a small quantity of necrosed bone, and directed his after-treatment to the use of Bowman's probes and syringing the duct with antiseptic solutions. This treatment was continued for three months, when the patient was discharged cured; still more or less tearing continued until November, 1899, when the second abscess



made its appearance. After six weeks of careful syringing and probing, without any marked benefit, I performed the radical operation under a general anæsthetic, removing the entire sac and duct, with a small amount of necrosed bone, from the pituitary membrane to the bifurcation of the canaliculi; then with the electric cautery point I carefully cauterized the canaliculi to the margin of the lid, applied two silk sutures, dressed it antiseptically, had primary union in the lower part of the wound, the canaliculi healed by granulation. Complete recovery.

CASE II.—B. J., æt. 42, male, first consulted me August 5, 1900, with history of having had stenosis with muco-purulent ectasia of the lacrymal sac of the right side for the past six months. Three days prior to my seeing him an abscess had begun to form, with all the symptoms common to this disease. I proceeded at once to do the radical operation, under cocaine anæsthesia, observing strict asepsis. I made a complete dissection of the sac and tube, using the cautery point as in Case I. After taking two deep catgut and two subcutaneous silk sutures, the wound was antiseptically dressed, union taking place by first intention in the lower part, the canaliculi healing by granulation. This patient, being a farmer by occupation, was continually annoyed by the excessive accumulation of tears caused by wind and dust, and being willing to submit to almost anything to get relief, I removed the tear gland October 20, 1900, after having shaved the entire eyebrow and made every preparation for an aseptic operation. Primary union and complete recovery followed, with sufficient tears to lubricate the membrane of the eye.

CASE III.—J. C., æt. 65, male, twenty years ago suffered from purulent ophthalmia for about one year; since that time he has been more or less troubled with tears running over the lids and flowing down the cheek in sufficient quantity to irritate the skin. December 1, 1900, an abscess developed, and four days later I was called and made an incision, and a large quantity of pus was evacuated. I washed it out with  $H_2O_2$  and other antiseptic solutions, and continued this palliative treatment with but little benefit until January 3rd, when, under cocaine anæsthesia, I removed the sac and tube, cauterizing the canaliculi. The union in this case was the same as

the above cases, and the patient was apparently well until three weeks later, when a subcutaneous abscess made its appearance, which was opened and washed out with a two per cent. solution of silver nitrate. Recovery uninterrupted; patient well, but still greatly inconvenienced by the accumulation of tears.

#### DISCUSSION.

DR. F. A. PHILLIPS, Chicago.—I would like to say a word or two in reference to the conservative treatment of these cases, especially the cases of blennorrhœa of the sac which have not as yet developed the acute suppurative condition; in other words, those cases in which an abscess proper has not developed. It is in these cases that we get early the symptom of epiphora, and it seems to me at this time that conservative treatment is advisable. If seen thus early dilate the punctum, then with Anel's syringe or a lacrymal pipette, wash out the sac carefully, and if the solution passes through into the nasal cavity do not pass a probe. It is and has been my practice for the past two years to probe no case for at least a period of two or three months, and if I find then the epiphora continues, and the stenosis of the puncta is not relieved by dilatation, I take a pair of Stevens' tenotomy scissors, and after introducing one blade within the canaliculus make an incision from one and one-half to three millimetres in length. If the punctum is inverted—that is, rotated toward the eyeball—I turn the outer blade so that it points outwards towards the outer border of the lid in order that the incision may pass obliquely across and leave an opening into the canal lying in the lacus lacrymalis. I have found by this conservative method of treatment that many of these cases will be relieved and go on to recovery. Where cases have gone on to the condition in which a chronic suppurative process is present it is important to obtain an opening, a large one, and keep it open. This can best be done by inserting a stylet or the probe mentioned by Dr. Kyle. In two such cases as have just been described, I had to operate because I was not able to relieve the patients of the suppurative process by treatment. The probe if passed continually would maintain the patency of the canal, but after a discontinuance of from one

to three months they would return with the suppuration and epiphora; I should have considered them fortunate if they had only epiphora. In the majority of cases of chronic suppurative dacryocystitis one of two things will result: either suppuration ceasing, contraction takes place with the closure of the duct so that epiphora is constant, or the suppurative process recurs and the patient will have to apply again and again for treatment. Such has been my experience. I have seen these cases recurring year after year, and they would come back once or twice a year for treatment; so my experience has made me very conservative in the matter of passing probes. I have seen a number of cases of suppuration produced by the early use of the probe where there had been prior to its use but a simple blennorrhœa of the sac. For that reason I wish to call attention particularly to the conservative treatment: first, by using dilatation of the punctum and the flushing out of the apparatus with a saturated solution of boracic acid; and second, avoiding the use of the probe until such time as you are confident stenosis exists in the lower part of the apparatus, in the bony canal.

DR. S. C. AYRES, Cincinnati.—In regard to the treatment, I have pursued the methods which most of you have adopted—washing out the tear sac and then treating it, dilating the canaliculi, passing a probe into the nose before making an operation. I do not believe, however, that I have been quite as fortunate as some of you in treating obstructions in this way, for after my patients were apparently well they would occasionally come back with a return of the epiphora; and in these cases I simply slit the upper canaliculus, pass a probe, and in a little while the patient is well. I have very positive ideas in regard to slitting the canaliculi, and it is surprising when one looks up this subject in the text-books to find how different authors recommend slitting, sometimes the upper and again the lower canal. Anyone who operates upon the lower canaliculus knows how much twisting of the tissues one has to make in order to get into the sac, so I do not think one is ever justified in operating through the lower canaliculus unless he cannot for some good reason utilize the upper.

DR. J. F. REYNOLDS, Mt. Sterling, Ky.—I do not feel that it is necessary for me to enter into further discussion of



this subject. The able discussion of the papers of this symposium to which I have listened, by such eminent teachers and practitioners, have been to me personally a source of great satisfaction, besides they have brought out a number of points of very valuable information, which will be beneficial to me in the future.

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NERVE RESECTION, AS APPLIED TO THE SUPRA-  
ORBITAL AND NASO-LACRYMAL BRANCHES  
OF THE FIFTH PAIR.\*

BY J. O. STILLSON, M.D.,  
INDIANAPOLIS, IND.

THE surgical procedure indicated by the above title seems to have passed out of the minds of the operators of the present day and to have been relegated to the dump-heap of technical science, so to speak, and to have been replaced by improved modern methods which have had a tendency to draw the attention of the surgeon away from the orbit and the eye, and center his base of attack on the nasal vault as the seat of the enemy's stronghold in the vast majority of those aggressive and painful reflex neuroses which still go under the general appellation of orbital and supra-orbital neuralgia. We hear much and see a great deal of optico-ciliary neurectomy, and doubtless in many cases we meet with some very good results from this operation. The more difficult and vastly more dangerous operation for the resection of the superior cervical sympathetic has become a popular operation for the radical cure of those disorders to the visual apparatus, having for their initial cause a preponderance of intra-ocular pressure, and passive congestion, so to speak, in the capillary circulation, which is controlled by the vasomotor system of nerves in and about the uveal tract and ciliary body, the result of which we see in the expression of pain, more or less rapidly decreasing visual acuity, and tension of the globe. If we, in our zeal, sometimes allow fashion to influence us, we may be able to bring our minds readily to the adoption of an operation like optico-ciliary neurectomy, where the arguments *pro*

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and *con* are not so unevenly divided. The successful severance of all interconnection between both globes, so far as nerve influence goes, would afford us a plausible reason why we should prefer this operation to complete enucleation as a means to prevent sympathetic irritation and sympathetic inflammation, because the cosmetic effect is so infinitely preferable to that of enucleation or even evisceration, to say nothing of the permanent life-time burden and annoyance and expense of the prosthesis.

Whether it be from prejudice or bias, or lack of popularity, or for the reason that failures have attended the resection of the branches of the fifth in the orbit, where the operation has been made on unsuitable cases, it is not in the province of this paper to determine, neither is it the purpose of the writer to champion any pet procedure of his own; but simply to call attention to a few points which seem to indicate that the resection of the supra and infra-orbital, and the ciliary connection between the fifth and the globe by the nasal branch, and the branch which supplies the tear gland, may, in suitable cases yield us results which justify us in selecting this simple and easy, and almost harmless procedure under certain condition.

Badal<sup>1</sup> has called attention to the operation of elongation, or "*arrachement*" (really tearing out) of the branch which he calls the external nasal, for the treatment of certain forms of ciliary "*douleur*," which seem to have their origin and point of depart in the globe. He sets aside as manifestly inconsistent, first, all those acute and some chronic forms of complaint, the pathology of which is apparent, such as the different forms of iritis, keratitis, choroido-retinitis, etc., and cites three groups of cases etiologically distinct, which seem to him to offer suitable reasons why this operation should be performed: "First, those painful affections which are purely and simply the expression of a neuralgia of the trigeminal nerve, not accompanied by any appreciable pathological complication in the globe. Second, those which result from certain affections traceable to the tunics of the eye, in particular the ciliary region and the uveal tract, where we have hyper-

<sup>1</sup>Badal. Gaz. Heb. des Sciences Med. de Bordeaux, 3 et 17, Dec. 1881. Annales d'Oculistique, Tome XC., p. 89, etc.

æmia and engorgement, with compression on the filaments of the terminal branches of the nerves not distinctly necrotic or inflammatory in character, yet having a tendency to inhibit normal physiologic metabolism. Third, those painful phenomena which may be recognized as having an origin in some way connected with pressure on the ciliary nerves in the globe where the departure from normal intra-ocular tension is easily made out. Occasionally we note the increased depth of the anterior chamber. Later there may occur a primitive or secondary glaucomatous process arising as a factor or as a sequel to the above, and in many instances which of the two conditions is the true one we cannot always determine.” “Everyone,” continues this author, “recognizes the vasomotor, secretory, and trophic functions of these orbital nerves in question; every one knows that ciliary forms of neuralgia are almost constantly accompanied by a hypersecretion of the lacrymal gland, by a hyperæmia of the ocular mucosa, by an increased flow of the nasal discharges apart from the tears, and by general trophic disturbances throughout the ophthalmic zone.”<sup>2</sup> Chauval proposed to choose the external nasal nerve as the one most appropriate upon which to perform the operation of resection for the purpose of combatting such neuralgias as were accompanied by profuse lacrymation, photophobia and peri-orbital pain. He claimed that this branch in question not only was most to blame, but that because of its double connection with the tear gland upon the one hand, and the ethmoidal sinus on the other, its “arrachement” would cut off the source of nerve supply to these regions and inhibit algesia; besides it was an operation fairly safe and easy to perform, and conservative in nature, and would always leave the surgeon ample time to undertake any of the more dangerous operations (iridectomy, sclerotomy, paracentesis, etc.) later, in the event it became necessary. Besides it is an operation the anatomy of which is not difficult nor complex. The nasal nerve, after having given off the ciliaries direct and the sensitive root to the ophthalmic ganglion, divides into the internal nasal and the ethmoidal; this is the supply to the anterior nasal and ethmoidal region, while the external is the main part of the nerve as its continuation supplying the con-

<sup>2</sup>Chauval. Archives General de Medecine, Aug. 1881.



junctiva, the mucosa of the nasal sac and canal, the palpebral region, etc. The manner in which the main trunk is to be found near its bifurcation, or where it is large enough to serve the purposes indicated, is as follows:

“Place the index finger upon the globe immediately beneath the margin of the orbit, the palmar surface in front, and the extremity of the finger resting against the angle of the nose. The point of emergence of the nerve will be found to be located exactly beneath the center of the margin of the nail.”—ABADIE.<sup>3</sup>

The primary incision is to be made with a bistoury, and the dissection finished with blunt hooks or the back of the knife; usually a small plexus of vessels accompany the nerve, which are to be separated and the nerve is to be drawn slowly from the orbit, tearing it away at as great a depth as possible so as to get out the deeper portion and sever the ethmoidal connection as well as the connection with the ganglion.

The supra-orbital is so easily found that one need not to stop to describe the technic of this operation. Usually the writer has simply cut down on the supra-orbital notch and passed a strabismus hook under the orbital aspect and readily found the nerve. When the notch was in the form of a foramen, he has cut out the anterior portion of the notch with bone forceps or a small chisel, and liberated the nerve so as to get out quite a quantity from the corrugator, backwards, and having seized the orbital trunk well in the orbit made steady traction until the nerve stretched considerably before finally breaking deep in the orbit; in this way about two inches in length can be successfully removed. The small wound is dressed antiseptically and closed with one or two small sutures, or may even be sealed up with plaster. At the end of forty-eight hours the union is complete per primam.

In one case operated upon a few months ago the writer found what appeared to be two supra-orbital notches, and two nerves emerging from them, in the same subject on one side, the side affected, while on the opposite side the orbit showed but the one supra-orbital notch. Both of these nerves seemed extremely tender to touch. The patient, a lady, had had se-

<sup>3</sup>Abadie, Arrachement du Nerf Nasal, Annales d'Oculistique, Tome LXXXIX., p. 234.

were supra-orbital neuralgia for many months, even years. Both these trunks were attacked, and from an inch and a half to two inches of the nerve trunk withdrawn from each. The part excised had the appearance of nodular irregularities and swellings along the course of the bundles, and from this appearance I concluded that there had been in these nerves more or less neuritis, which probably gave rise to the pain.

My first experience with resection of the supra-orbital nerve may be said to have originated in an accident. Sometimes mere trifles exercise great influences in determining the outcome of a case, and certainly this one was not an exception to that rule. It occurred ten years ago. A lady, Mrs. M——, in somewhat humble circumstances, rather poorly nourished, and afflicted with one of those perennial ophthalmias, had applied to me at the city hospital for relief every year at the beginning of my service for several years. During the three months she was under my care I found that she made some improvement, when she would pass out of my care, and be seen no more until the next season. Sometimes in the intervals she would come to the office with her relapses, and they were all of the same character. The eyes were always fretful, there was much weeping, photophobia, pain, and hyperæmia. The old chronic granular conjunctivitis had run its course for ten years. There was some contraction of the tarsi, and some cicatricial deposit throughout the mucosa of the lids; the pannus was never very dense; it was more of the thin nebular variety. Astringents usually toned up the conjunctivæ, and good nourishment and indoor life as a rule benefitted her, and with proper attention to her bowels, which were constipated, she would always improve; but as soon as she became sufficiently improved to leave the hospital she would relapse and for the remainder of the year spend her time between the different outdoor clinics, never cured and always suffering.

At the time mentioned I noticed a small round hard elevation of the size of a pea, right above the supra-orbital notch of the right eye. This was extremely sensitive to touch. At first I took it for a small varix; but upon somewhat closer examination, and from the very great sensibility on touch, I came to the conclusion that it was a bead-like enlargement of the

nerve-trunk, and it seemed to be long instead of round and extend into the canal. I advised her to have this small tumor removed, not really thinking that it had much to do with the case, but as soon as I came down upon the nerve, which it proved to be, I determined to resect as much of the nerve as I could, and consequently took out nearly two inches of the nerve, which was quite irregular, and had several nodular enlargements throughout its course. The case made an uneventful recovery, healed by first intention, and to my surprise the pain and weeping seemed to have disappeared by magic. She remained in the hospital some weeks after the operation, and left in better shape than at any other previous epoch. In three months afterwards she came to my office, and I scarcely knew her; her eyes seemed to have entirely recovered; the corneæ had cleared completely, and she had no more pain and scarcely any tears. The correction of her astigmatism gave her good vision, and she has remained without any further treatment, quite comfortable, for now ten years.

After that I began to look for such cases, and have made a number of such operations with happy results. This winter I encountered another similar case; one where I had recommended the operation some three years ago, but which was refused. The case had passed out of my memory. She introduced herself by stating that she had come for the purpose of having her orbital nerve removed, as I had recommended. I then recalled the case. Upon examination I found this nerve, which was the right one, excruciatingly tender. The upper eyebrow was drawn up and showed violent contraction (elevation) of the corrugator or rather the frontalis muscle. The side of the face participated in the spasm. She stated that she had had frontal headache and neuralgia for five years, had taken all kinds of medicines; and her physician, who telephoned me, stated that the case was a nuisance to him and had given him endless trouble, and that he had sent her with the hopes that by resecting the supra-orbital nerve she might find relief. Accordingly I sent her to the hospital and operated, keeping her there two weeks. The nerve was easily found. I took out the portion above the notch up to the several divisions and got out from a half inch to an inch of three short branches above the eye, and then cut the bony canal or foramen open with a chisel, made some



stripping backwards into the orbit till about two inches of the trunk was exposed, then with blunt forceps made traction until the nerve broke off rather deep in the socket. The case healed nicely, and so far she has had but little trouble. She now says that her eyebrow and forehead on the right side have a sensation of cold, feel numb and chilly all the time, but that she has had no more neuralgia. It would seem that in her case also that a good result had followed the operation.

#### DISCUSSION.

DR. ADOLF ALT, St. Louis.—While I have had no occasion to make a similar operation for neuralgia, I think a case in which the good primary result of the neurectomy is maintained for ten years is a very fortunate one. I have had occasion to make neurectomy of the supra-orbital nerve, as well as the infra-orbital one, for other reasons, and I have always found that, although I excised pieces of from 1 to  $1\frac{1}{2}$  inches in length, reunion of the nerve took place after a shorter or longer interval, and with re-establishment of conduction the former symptoms returned, and it was very lucky if they did not assume the severity which had brought about the operation. In one case of blepharospasmus (see *American Journal of Ophthalmology*, Vol. VI., p. 332) I excised both the supra-orbital and infra-orbital nerve on both sides, and yet the symptoms returned after a while, though not with the former severity.

DR. DERRICK T. VAIL, Cincinnati.—I encountered a case recently which because of its unusual interest I would like to relate. The patient had been suffering great pain in the right supra-orbital region for several years. The attacks were intermittent and irregular. During the attacks the man suffered excruciating pain. There was slight exophthalmos of the right eye. Photophobia, lacrymation and ocular congestion were also present. He belonged to the German type, was stocky in build, sanguine in temperament, with no signs of neurasthenia nor hysteria. I do not think there is any doubt about his suffering agonizing pain. At the periods when he would have these attacks of pain he would develop a suicidal mania and had to be closely watched, as it was feared he would destroy his life. Some years ago Dr. Holmes had opened up his right sphenoidal cavity and for two years he enjoyed free-

dom from attacks of supra-orbital neuralgia. Recently, within the last nine months, he had a recurrence of the most violent character. He came to me requesting that I open up his sphenoidal cavity again. I examined his nose carefully, but failed to find the slightest evidence of sinusitis. The mucous membrane covering the turbinated bones was somewhat boggy; but that was all, and I did not feel justified in curetting, so I simply temporized, using arsenic, aconitine, quinine, leeches and blisters, hoping to relieve the patient without an operation. He went from bad to worse and finally had to have hypodermic injections of morphine to relieve his suffering. Of course I was unwilling to continue the morphine treatment, fearing the habit, and in a day or two was compelled to say that the only thing I could suggest was a resection of the supra-orbital nerve. He readily gave his consent to this. He was anæsthetized and an incision made over the exit of the nerve on a line with the brow and the edge of the orbit. The nerve was readily found. I hooked it up with a tenotomy hook and found that it had divided into some four or five branches before reaching the foramen. Being anxious to get all the branches, I dissected back into the orbit as far as I thought I could safely go, and then grasped the nerve, as the Doctor has described, with a small pair of hemostatic forceps, pulling steadily on it with slow and regular turns. I could feel the nerve stretching more and more, and finally succeeded in tearing it out of the orbit. I then tore out the terminal nerve strands, and as I pulled I could see the skin wrinkling along the course of the nerve as far up as the line of the hair above the forehead. The relief from the acute pain was instantaneous. The healing was by first intention and occupied but five days' time. That was about nine months ago. Three weeks ago he came back to me and said he was troubled again with pain which, while not in the supra-orbital region, seemed to be in the back part of the eye and in the temple. The area around the brow was entirely numb and free from pain. He had an anxious expression, the eye was suffused with tears, and there was a good deal of photophobia. I confess I did not know what to do. He clamored for a nasal operation, but upon examination the nose appeared to be normal, except the membrane had the same sort of boggy appearance previously mentioned. I cocaineized the

nose, and to get the mucous membrane contracted to the bone used the suprarenal extract, and at the same time removed most of the middle turbinated bones. I went on back toward the cavity of the sphenoid and curetted gently, cleaning it out as best I could. He came back daily for treatment. On the third day he said that something had suddenly burst in his nose. I made an examination and found the upper straits of the nose full of a creamy secretion that came down from the nasal attic. He expressed great relief and seemed to think it unnecessary after that to come for treatment, as he was entirely relieved.

This then was either a case of hysteria, true neuritis, or else of empyema of the sphenoidal cell. I am rather inclined to think it was a case of sphenoiditis. The ophthalmoscopic examination and field of vision were normal, but through these attacks the patient complained a great deal of obscured vision.

DR. M. F. COOMES, Louisville.—I have been very much interested in the paper just presented, and when I get home I think I shall try this operation on a case. The case is an ideal one for operation—a young lady, 26 years of age, who has suffered similarly to the case described by the Doctor. When she gives strict attention to her diet she is better, but with inattention to this matter she lapses back again. At the menstrual times she seems to be worse, but I do not think this cuts much figure. I want to thank the Doctor for reading the paper, as it deals with a subject which we do not find in books, and I hope he will keep us posted in the future as to his results in these cases.

DR. J. O. STILLSON, Indianapolis.—As I stated in my paper, I felt that I must be cautious in presenting a paper of this kind before this learned body. I knew I was treading on dangerous ground in offering a paper on the resection of the supra-orbital nerve, because we all know of the old operation which was done away back years ago and left abandoned alongside of the operations for resection of Meckel's ganglion for tic douloureux. I watched this one case for ten years before I felt justified in saying anything about it, and then having run on to these other cases which I treated, I concluded I would write this paper and present the cases for what they were worth.



# MEDICAL SOCIETIES.

## PROCEEDINGS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.\*

*Friday, July 5th, 1901.*

G. ANDERSON CRITCHETT, M.A., F.R.C.S.E., President,  
in the Chair.

### BLINDNESS RESULTING FROM SODIUM SALICYLATE.

MR. SIMEON SNELL related the following case: The patient, a girl, suffered from acute articular rheumatism, for which sodium salicylate was prescribed. She awoke from sleep at 7:30 A.M. and said that everything was dark in front of her. At the medical attendant's visit between 11 and 12 he found her unable to distinguish between light and darkness. The next day Mr. Snell saw her and found her perfectly blind. The ophthalmoscope disclosed nothing abnormal in either fundus. The following day he again saw her, when she was succumbing to pericarditis with endocarditis. Again nothing abnormal in either fundus was detected. There was no return of vision, and she died that same evening. It was calculated that the total quantity of sodium salicylate taken must have been 140 grains, if not 160 grains, in sixty hours.

MR. SNELL said he thought that there could be very little question that the sodium salicylate was the cause of blindness in this instance. The number of similar cases recorded was very limited.

### SARCOMA OF CONJUNCTIVA.

MR. J. B. LAWFORD reported further notes of a case of sarcoma of the conjunctiva. The patient was a woman whose conjunctiva showed marked and increasing pigmentation when she was shown to the Society on June 11th, 1896. In July, 1896, two pinkish nodules appeared. In August, 1896, the cornea became hazy and the conjunctiva raised. In October, 1896, the eyeball and conjunctiva were removed, and were

\*British Medical Journal.

examined by Mr. Devereux Marshall, who reported the growth to be a pigmented sarcoma. The pinkish nodules consisted of connective tissue, cells, and blood vessels. There was no growth whatever within the eyeball. In May, 1897, the patient had a serious illness with brain symptoms, and it was thought an intracranial growth was present. However, she got better. In October, 1897, some new growth was seen in the orbit, and the general health was not good. In October, 1897, the growth was removed and was examined, and found to be a sarcoma. In August, 1898, another recurrence was seen. On September 1st, 1898, the growth was removed and examined by Dr. Jenner, and found to be a sarcoma. In April, 1899, another pigmented spot was seen, and in the following September another had appeared in the upper lid. On September 14th, 1899, the whole contents of the orbit were removed. On March 20th, 1900, the patient was very ill, and died on April 28th, 1900, but no necropsy was obtained. Mr. Lawford unfortunately did not hear of her death until some weeks later, and owing to the patient's very irregular attendance, and also to her refusing to have a radical operation in the early stage of the disease, her chances of cure were much diminished.

#### CONJUNCTIVAL BRIDGES AND POUCHES: UNION OF RETROTARSAL FOLDS.

MAJOR H. HERBERT, I.M.S. (Bombay), described a condition found in nine upper lids of seven patients of all ages. One or more retrotarsal folds had contracted permanent adhesions with the tarsal conjunctiva, evidently while displaced downwards through swelling in some previous inflammatory attack. The adhesions were sometimes multiple along the summit of the one fold; in other cases smaller adhesions of underlying folds were found beneath the principal ones. The folds had retracted, except when held by the adhesions, thus leaving the permanently displaced portions as broad or narrow bands, or bridges of conjunctiva connecting tarsus and fornix, and freely admitting the passage of a probe beneath them. There was no history of injury in any case, but in the majority there was, or had been, trachoma. Two cases were also mentioned in which small bridges of union had formed

between folds in the lower fornix. In another patient recovering from acute conjunctivitis (membranous or pseudo-membranous) the actual formation of these adhesions was seen. The union was primarily by means of fibrinous exudation, which apparently became organized. Finally another upper lid was mentioned in which a broad fold came down over the tarsus, and had adhesions not only at its summit, but also over the greater part of its surface, leaving only a shallow pouch or pocket under each curved lateral margin.

MR. BISHOP HARMAN stated that he had seen a similar condition in a patient in South Africa.

#### SYMPATHETIC IRIDO-CYCLITIS.

MR. SYDNEY STEPHENSON communicated notes of a case of mild sympathetic irido-cyclitis in a child fifty-four days after removal of an injured eye. The interval between the original injury and the enucleation of the eye was twenty days. The injured eye was affected with sero-plastic cyclitis, but micro-organisms could not be recognized. The patient when seen sixteen and a half months after the accident had made a complete recovery.

MR. DEVEREUX MARSHALL asked Mr. Stephenson if this was a record case. He himself had seen a mild case develop between two and three weeks after an eye had been removed for injury, but he had never seen a case develop so long as fifty-four days after enucleation.

MR. STEPHENSON said that he was not certain what was the longest interval observed, but he did not think that his case was a record.

#### CARD SPECIMENS.

The following card specimens were shown: Mr. C. Wray: Gumma of the Orbit, which occurred forty years after primary syphilitic infection.—Mr. W. C. Rockliffe: Cystic Growth of the Retina (probably Carcinoma) Secondary to a Primary Scirrhus of the Breast. There was evidence of both eyes being affected.—Mr. Marcus Gunn: Exceptional Appearance of a Choroidal Lesion, probably Tuberculous.—Mr. Inglis Taylor: Peculiar Form of Vitreous Opacity.—Mr. Bishop Harman: Hole in Macula.



## ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### ON THE OPERATIVE TREATMENT OF CORNEAL ASTIGMATISM.

A. Brewer (*Lancet*, June 1) reports good results from cauterization in corneal astigmatism. He operated only on cases in which there was a reasonable chance that the patient could do without glasses. The operation was confined to cases of mixed astigmatism and compound hyperopic astigmatism; the best results were obtained in the latter cases. An over-effect should always be produced. According to the author, the amount which is corrected seems to be less in adults than in children. He employs the ordinary platinum wire, brought to a red heat, producing a small punctate burn in the limbus, penetrating about one-half the thickness of the cornea. A more superficial burn gives only a temporary result.

### STRABISMUS AND ITS TREATMENT.

At the fifty-second meeting of the American Medical Association, held in St. Paul, Minn., strabismus and its treatment was discussed in the following order:

*Measures Other Than Operative.*—By Dr. Edward Jackson, Denver, Col. The author states that the operative treatment of strabismus is less applicable than non-operative measures. In order to bring about a perfect cure, some non-operative treatment is requisite. The objects in view are: 1. To bring about normal innervation of the muscles concerned in the movements of the eyeball, by removing abnormal requirements. 2. To keep the eyes as far as is possible upon the best plane of visual acuity, and to equalize the efforts that are required of them. 3. To eradicate abnormal ways of using the eyes, especially when one eye is used, to the practical non-use of its fellow. 4. To develop normal binocular vision. In the majority of cases, treatment should be instituted as soon as the strabismus is first noticed. The establishment and perfection of binocular vision is the aim of the non-operative treatment, and, from a practical point of

view, the correction of refractive errors, stands pre-eminent in the treatment of strabismus. The occlusion bandage, constantly and correctly applied in young children, is of value. Intelligently performed skiascopy is essential. Mydriatics are of no use unless they absolutely paralyze accommodation. Of the apparatus employed for the development of binocular vision (the primary object being to induce the patient to see with both eyes at once), Jackson prefers the fusion tubes of Priestly Smith, and especially in the form shown by him before the Section. Next to these he prefers the reflecting stereoscope as modified by Worth. Ordinary stereoscope lenses are so decentered that they practically act like prisms with bases out.

*Operative Measures.*—Dr. C. F. Clark of Columbus, Ohio, the author of this paper, calls attention to, and discusses the variety of opinions that exist among ophthalmologists: 1. As to the degree of deviation and the character of the cases which they consider proper subjects for operation. 2. As to the age at which an operation should be performed. 3. As to the choice between tenotomy and advancement. 4. As to the amount of deviation that may be safely corrected by tenotomy. 5. As to whether the operation should be confined to the eye which most constantly deviates or its effect distributed between the two eyes so as to preserve ocular balance. 6. As to full correction of the error in the first operation or delaying a portion of the operative procedure until the effect of the first division may be properly established. 7. As to the practicability of partial or graduated tentomy or advancement. 8. As to the value of orthoptic exercise before and after operation. 9. As to the value of tests made with prisms and otherwise during the progress of an operation. 10. As to the importance of the subconjunctival method of Snellen and of suturing the conjunctival wound. 11. As to the necessity of bandaging one or both eyes after an operation for tenotomy or advancement. 12. As to the relative importance of operations upon the superior and inferior recti muscles in cases of hyperphoria and hypertropia associated with lateral deviations; and 13. As to the most approved form of operation for tenotomy and advancement. The author predicts that within a few years many of those who have heretofore depended mainly upon tenotomy for the cor-

resection of strabismus will find themselves adopting the more tedious but far more conservative operation of advancement, almost as a routine practice. The peculiar insertion of the superior and inferior recti muscles should be taken into consideration. Whether tenotomy or advancement are adopted, the operative effect must be so distributed among the various ocular muscles as to preserve the control of the eyes in all ordinary movements. The well-marked heteronymous diplopia, with the images widely separated, which not infrequently results after carefully performed operations for convergent strabismus and dependent upon the presence of what is sometimes called a false macula, should not disconcert the surgeon; as it rarely causes serious disturbance, although it increases the difficulty in determining the result obtained from the operation. The author is convinced that in the operative correction of squint, advancement or resection combined with a very limited tenotomy ought, as a rule, be performed in place of a simple tenotomy.

*Its Treatment.*—Dr. A. E. Davis, of New York City, read this paper by invitation. After considering the different tests for strabismus he states that it is desirable that a uniform or standard set of tests be adopted for accurately measuring strabismus. He makes a plea for a better understanding, not only of the physiological action of the ocular muscles, but of physiology in general, by those treating cases of strabismus. He believes that in most cases of convergent squint the amblyopia is acquired and functional, and only in rare instances is it congenital. As soon as the strabismus is observed the non-operative treatment is capable of doing considerable good. By means of this manner of treatment, if instituted in time, forced fixation and suppression of the image in the squinting eye are prevented, fusion of the images assisted, and true binocular single vision frequently preserved. About 30 per cent. of all cases of strabismus may be cured simply by the non-operative treatment. As soon as non-operative measures cease to bring improvement operation should be undertaken; but if operation is delayed after this it becomes not only useless but harmful, increasing the amblyopia, because the habit of suppressing the image in the squinting eye persists. He believes that after operation the stereoscope, occlusion bandage, bar-reading, glasses, etc., are very useful. He



recommends Panas' method of operating for strabismus as safe, quick and efficient; but it should never be performed while the patient's eyes are being influenced by a mydriatic.

*The Cosmetic and Visual Results.*—Dr. J. M. Ray of Louisville, Ky., the author of this paper, believes that glasses should be adjusted to the eyes of children affected with strabismus as early as possible, depending upon the power of the parent to control the child. The glasses should always be worn for a long enough time to ascertain their effect upon convergence before an operation is undertaken. Dr. Ray considers the use of the exclusion pad and orthoptic exercises as advisable steps, principally for preserving the power of simultaneous action of the muscles when the child arrives at the proper age for operation. Parallelism of the visual lines does not mean single binocular vision, and the latter is not present in more than 7 per cent. of cases of strabismus. Cosmetic results can be produced and preserved when the power of fusion is absent, both in monocular squint attended by considerable amblyopia as well as alternating squint. In the latter variety, if the hypermetropia is high, the chances for the production of parallelism are better than when the hypermetropia is low. The amount of abduction present in the corresponding externus influences the effect of a tenotomy to a considerable degree. Two tenotomies on the same internus is to be considered as bad surgery on account of the resulting sinking of the caruncle and the divergence which later ensues. From a cosmetic point of view the operative correction of strabismus is not as simple as supposed, especially when one considers the noticeable exophthalmos and the both inward and outward limitations of the ocular excursions which sometimes follow. A study of 100 cases during the past four years showed that binocular vision was rarely produced. Glasses should always be tried, but stereoscopic exercises are of little value.

#### TREATMENT OF HETEROPHORIA.

At the fifty-second meeting of the American Medical Association, held at St. Paul, Minn., Geo. M. Gould read a paper on the *non-surgical* treatment of heterophoria, and G. C. Savage one on its *surgical* treatment. Dr. Gould concludes, from experience in his private practice, that there is no surgi-

cal treatment, properly speaking, of heterophoria. For six years he has observed no case of heterophoria requiring operation, and that he has obtained satisfactory results when the cases were treated with common sense instead of with the scissors. He believes that in heterophoria accurate refraction, temporary but partial prismatic neutralization, supplemented by ocular gymnastics and the observance of ophthalmic hygiene constitute the proper treatment. He strongly advocates the non-surgical treatment of exophoria, as the following remarks will indicate: "If words are not minced, then tendon-cutting in exophoria is positive malpractice." "Surgery is the despair of medicine, and we should never adopt surgical methods while there is a glimmer of hope by natural means in the direction indicated by the subtle and adherent strivings for normality." The other ocular insufficiencies were also discussed.

Dr. Savage believes that no operation should be done in cases of heterophoria intrinsic in character when gymnastic exercises, even if required for a long time, would give relief. The two objects in view in operating on eye muscles are the alteration of the muscular tension and the change of plane of action. The existence of a cyclophoria should be first excluded. In no variety of heterophoria should a complete tenotomy ever be performed. He describes the various operations for sthenic and asthenic forms of heterophoria, with their various complications.

#### EXAMINATION OF MUSCULAR INSUFFICIENCY.

Alexander Duane (*N. Y. Medical Journal*, May 25) gives the routine which he has adopted in examining the eye muscles. He says: "After making a cursory inspection of the patient to detect the presence of any obvious anomaly, I direct his attention to a cardboard sheet, a foot or more square, hanging on the opposite wall of the room. In the centre of this sheet is a round black spot, one inch in diameter. I cover the left eye with a screen, and, first making sure that he is fixing the spot with his right eye, I pass the screen quickly from the left eye to the right. In so doing I watch for any deviation taking place in either eye, and the same time ask the patient if he notices any movement of the spot. I then place prisms, appropriately directed—*i. e.*, base in for

an outward deviation, base out for an inward deviation, base up or down for a vertical deviation before the eyes, gradually increasing their strength until there is no longer any deflection behind the screen. This neutralizing prism will indicate the amount and character of the deviation as measured by the screen test. The same prism may also abolish the apparent movement of the spot, perceived by the patient. If not, I change the prism until this movement is absolutely nil, and thus measure the amount and character of the deviation by the parallax test.

“If there is any noticeable deflection behind the screen I then apply the screen test in a second way or by binocular uncovering. This well-known procedure consists in covering the left eye and then uncovering both eyes and noticing the movement that takes place. If, on thus uncovering the left eye, the right eye remains steady and the left moves into position, I know that the patient has binocular fixation, and that the deflection was a heterophoria and not a squint. If, however, the right eye should move out of its position and the left eye should move into place, I know that there is a squint and that the left is the fixing eye. If neither eye moves, I know that there is a squint and that the right is the fixing eye. By repeating this experiment with each eye alternately I can tell whether there is an habitual binocular fixation, an alternating fixation, or a uniocular squint. The diagnosis between the three may be conveniently formulated as follows:

1. “If in binocular uncovering but one eye moves, we have heterophoria and not squint.

2. “If both eyes move, or, in spite of there being an evident deviation, both eyes remain steady, there is a squint.

3. “In the latter case, if, when the left eye is uncovered, the eyes behave in the same way as they do when the right eye is uncovered (both alike moving or both alike remaining steady, no matter which eye is uncovered), the squint is alternating.

4. “If, when one eye (for instance, the right) is uncovered, both eyes move, and when the other eye (in this case the left) is uncovered, both eyes remain steady, the squint is uniocular (confined in this case to the left eye).

“I next employ the Maddox rod in the usual way, testing first for vertical and next for lateral deviations. For this, of course, I use a light as a test object. Next I employ the



phorometer (Stevens' model), and again first for vertical and then for lateral deviations. With the phorometer and Maddox tests I find, like other experimenters, that I get more accurate results if, as the patient is looking through the apparatus, I cover one eye for a few moments, then suddenly withdraw the cover and make the test before the patient has had a chance to fuse or separate the double images.

"The phorometer being still in position, I now use it in testing at near points, the test object in this case being a fine dot on a rather large card. Any object with lines in it I regard as vitiating the accuracy of the test. Using the same test object, I then make the near test with the screen and parallax just as for distance. I next ascertain the convergence near-point, using any fine object and bringing it up close to the eyes until the patient can no longer converge upon it, and then measuring or estimating the distance of the object from the root of the nose.

"Then I determine the prism-divergence (abduction) and the prism-convergence (adduction) in the usual way with prisms, held respectively base in and base out. In testing the prism-convergence it is a good plan to notice whether the accommodation is called into play as the patient converges. This can be ascertained if we use the ordinary trial card as a test object and observe how much the patient's vision is blurred by the progressive addition of prisms base out.

"Lastly, I determine the field of binocular single vision. This I do as follows: I place a red glass before the patient's right eye, and, standing at a distance of four feet, carry a candle so as to make it skirt successively all the outlying parts of the field of fixation. That is, I carry it first to the extreme right, then rather quickly back again to the middle line and on to the extreme left, then up (*i. e.*, to the up-and-left position), then back to the middle line (straight-up position) and on to the right (up-and-right position), then down to the horizontal plane, and then below it, so as to skirt the lower field in the same way as the upper. In doing this, I note whether the patient gets diplopia in any part of the field, how great the diplopia is, and what direction it tends to increase; and at the same time I watch to see whether the excursions of the eyes appear normal in all directions, or whether either eye lags behind in its motions anywhere."

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## ORIGINAL ARTICLES.

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### HYSTERICAL DISORDERS OF THE EYE.\*

BY FRANK A. PHILLIPS, M.D.,

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Illinois Charitable Eye and Ear Infirmary; Instructor in Ophthalmology,  
College Physicians and Surgeons.

CHICAGO.

IT is not strange, the functions being—as they are in hysteria—dominated and modified by ideas, that the eye should share in the disturbances produced. Writers on the subject of hysteria are, at the present time, quite universally agreed that the disturbances are psychic in character, beginning in the higher cortical centers, the function of the lower centers of the brain, spinal cord, and of the sympathetic nervous system becoming secondarily involved.

The age, according to Gowers, at which hysteria manifests itself is, in fifty per cent. of the cases, between the years of ten and twenty. It is not strange therefore that its affection of the special sense, sight, is of such frequent occurrence in early life; and this is further accounted for by the fact that when sight is disturbed it is frequently one of the early manifestations of the hysterical affection.

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\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.

Among the disturbances noted are those of (*a*) sight, (*b*) sensation, (*c*) motion, (*d*) secretion, and (*e*) peculiar associated sensations (*audition colorée*).

(*a*) Concerning sight disturbance we observe that *amaurosis* rarely attains to total blindness, it being usually unilateral and accompanied by amblyopia, more or less marked in degree, of the fellow eye. This is explained by the theory of its being a "crossed amblyopia," the affection involving the center of vision, higher than that for the half field vision, in which the entire field of the eye opposite the hemisphere is fully represented and that of the same side partially. This center is located in the lower and posterior part of the parietal lobe, the supra-marginal and angular convolutions. Of it Ferrier says: "Unilateral destruction of the cortex of the angular gyrus (in the monkey) causes temporary abolition or impairment of sight in the opposite eye, not of hemiopic character." Starr cites the fact of many lesions of the angular gyrus, not involving vision; thirteen such cases recorded by Ferrier and twenty-two by Exner. The few cases observed do not as yet clear up the question completely.

If we may assume a primary inhibition of the activity of the higher centers in the angular gyrus, the "crossed amblyopia" thus produced explains the affection of vision most frequently observed in hysteria and leaves a derangement of the pupillary reflex, etc., to a secondary inhibition of other centers.

Priestly Smith maintains that the condition is due to retinal involvement, but fails to account satisfactorily for the frequent retention of the pupillary reflex.

Max Knies advances the thought that a compression of the optic nerve is brought about by a vaso-motor relaxation in the vascular supply of the tissues at the optic foramen, thus more or less impairing its conductivity.

Gowers acknowledges that there may be pathological susceptibilities common in hysteria to both the center and the retina, but believes the theory of cortical inhibition best explains the phenomena. He calls attention to the obscurity produced by referring the changes to the vaso-motor system, as this explains the condition only by making it dependent upon derangement of the sympathetic system.



*Amblyopia* is frequently bilateral, often affecting one eye to a more marked degree than its fellow. The visual field is concentrically contracted, the color fields, beside the contraction, often showing transposition or even a total color-blindness.

“Transfert,” the transferring of the affection from one side to the other by suggestion, using therefor a magnet or any object supposed to possess intrinsic power, may be demonstrated. The examination at short intervals shows marked changes in visual acuity and the fields of vision. Even a few minutes may be sufficient time to demonstrate either marked contraction or expansion of the field. The suggestion that a plane glass will greatly improve vision is often acted upon immediately. Paræsthesiæ usually confined to one side, and that of the more affected eye, are frequently demonstrable.

When, as frequently occurs, a suspicion of simulation is aroused by the patient's response in answer to confusion tests, these other symptoms of hysteria are of importance from a diagnostic standpoint. In traumatic hysteria, where a legal controversy for damages frequently exists, the difficulty is enhanced, but it is often present when absolutely no cause for simulation can be found. Max Knies calls attention to the value of “other undoubted hysterical symptoms” in such cases.

Prince cites a case of apparent simulation where a case of monocular amblyopia, relieved by resuming binocular vision, incapacitated an applicant for a position requiring normal vision. In summing up his paper he speaks of the “startling results” obtained by confusion tests for simulation, and says “conclusions drawn from such tests are liable to lead to grave error.”

*Asthenopia* (*Kopiopia hysterica*, Förster) is that type of case characterized by extreme tiring of the eyes with exaggeration of painful symptoms. Muscular, refractive, and all discoverable peripheral irritations being sought out and relieved, still these patients frequently continue to find cause for complaint in such symptoms as radiating eye pain or headache with an exhaustion of the retina, evidenced by blurring vision, following slight use of the eye. Central vision is likely to be found normal, but the concentric contraction of the visual field

and color defects are generally present. After using the eyes vision will be found lowered.

*Monocular diplopia* is unsatisfactorily explained by irregular ciliary contraction. I have carefully examined two cases under the influence of a mydriatic (atropia) and been unable to detect any physical cause to account for the phenomenon; the retinoscope showed no peculiarity in the shadow whatever, and yet its image appeared double in the eye under examination and the correcting lens did not relieve the duplication. I confess an inability to account for the condition except to refer it to an anomalous translation of the stimulus in the disordered higher centers.

*Hemianopsia* purely functional in character is of rare occurrence. Hallucinations, astigmatism and scotomata are reported.

These disorders of sight are of sudden inception, last indefinite periods, and generally disappear entirely, often suddenly. The fundus shows no change from the normal. The functional loss may become permanent, but in what way the change in structure is brought about is unknown. A question as to the accuracy of the diagnosis naturally arises in such a case, but typically functional cases have been known to be followed by a permanent loss. (Gowers).

(b) Disorders of sensation include paræsthesia of all degrees. Anæsthesia or hyperæsthesia of the cornea, conjunctiva, and integument of the lids and temple may be present singly or in a group. The anæsthetic cornea, when irritated, may cause reflex injection of the anterior ciliary and conjunctival vessels and increased secretion of the tears; it is not involved in neuro-paralytic keratitis.

In hyperæsthesia the vision may be increased, but photophobia may be present and vision reduced. Hyperæsthesia of the ciliary body, *i. e.*, "ciliary pains without findings," has already been mentioned under the heading asthenopia.

(c) Disorders of motion include both paralysis and spasm. Of paralysis of the *extrinsic* muscles mentioned in literature, I find only abducens paralysis and ptosis. Möbius is quoted as denying hysterical paralysis of eye muscles, and saying that all such cases are traumatic. Others advance the thought that a spasm of the opposing muscle more likely produces the

condition, *i. e.*, apparent abducens paresis, by a spasm of the internal rectus. Spasmodic conditions more frequently prevail. Hysterical blephorospasm is most often bilateral. It appears suddenly and is, as suddenly relieved, the attack lasting from hours to even months; pressure points often exist, *i. e.*, points usually in the territory supplied by the trigeminus, upon which pressure at once relieves the blephorospasm. When the lids are simply held quietly closed the resemblance to ptosis is marked, but is diagnosed by the presence of resistance to effort at lifting the lid, the lowering of the eyebrow and the vertical furrows produced by the orbicularis contraction.

Both paresis and paralysis affect the *intrinsic* muscles. Charcot describes a "contracture" of the ciliary muscle in which the remote and near point become fixed at a certain distance from the eyes. This is distinguished from paresis by the absence of any range of accommodation, as will be found in the latter.

The dilator and sphincter iridis are affected, as evidenced by the pupil and its reactions. I have seen in a highly emotional female a marked mydriasis in one eye only in conjunction with a typical functional aphonia. After the latter was relieved the mydriasis recurred at intervals with no subjective disturbance observable. No medicinal or auto-toxic explanation was possible.

(*d*) Of the disorders of secretion epiphora without a cause is of comparatively common occurrence. Chromhidrosis of the lids is quite as rare.

(*e*) Of perversion of associated sensations, both *audition colorée* and "sounding vision" have been observed. As in affections of sight, these varied disturbances are usually found in connection with other hysterical symptoms, but may be the only symptoms present. Their diagnosis from beginning organic disease is not always easy or possible at first examination, but their anomalous course and distribution usually furnish unmistakable signs of their functional character. The prognosis is dependent upon the patient's age, antecedents, physical condition, the degree of hysteria manifested and its duration, and the presence of discoverable peripheral irritation.



A rational treatment takes into consideration all these facts; from the standpoint of the ophthalmologist, treatment must, in a certain degree, be governed by the eye findings, but in no case of a child affected with hysteria should he consider his duty done until he has advised with the parents and the family physician concerning the condition and its management. It is the early treatment or management of these little patients that means much as to whether they are to become self-reliant, useful individuals or unhappy neurotics. Their trouble should not be minimized by classing it as imaginary; yet, on the other hand, the error must not be made of making them a cause for sympathy and commiseration.

I believe that as a rule hysteria as a word in diagnosis should not be used in speaking of such cases to either the patients themselves or the parents; it carries with it to the lay mind a suggestion of "much ado about nothing," of a simulation and deceitfulness. An explanation of the condition as "neurasthenic" or "reflex" is much better received.

In the treatment of hysterical amblyopia in children, hypnotism has been tried and recommended. I have not tried it. It is my rule to inspire them with a "good faith and *strong* imagination."

Suggestive therapeutics has been and will probably remain one of the great powers for good in these cases. An authoritative, positive opinion of good to surely follow a line of treatment means much to these patients. And the more the suggestion can be conveyed in the rules regulating their habits of work, study, and play, the better. Placebos, such as plane spectacles, should be avoided if possible. A placebo remedy may be necessary. It has been my experience to find in all cases of ocular hysteria a refractive error warranting correction. This should be corrected. A muscular defect, proven to be not functional, should be remedied if of sufficient degree by an appropriate operation. Faradism is, of course, to be tried in persistent affections, and is often very beneficial.

CASE I.—Amblyopia left, recurring in right eye two weeks later, with central scotoma for red and green, concentrically contracted fields and confusion in naming red and green.

A. B., age 19. A well-developed, healthy looking girl, of quiet appearance but nervous manner of speech. Novem-

ber 19, 1900, complains that about two weeks ago she observed the vision of the left eye to have almost disappeared during the night; since then has been having headache and eye-strain. O.D.V.  $\frac{6}{6}$ . O.S.V.  $\frac{6}{9}$ . Pupillary reflexes respond promptly; fundi normal in appearance.

November 22, 1900, having used atropia one per cent. solution as cyclopegic:

O.D.V.  $\frac{6}{9} + 0.25 \text{ C} + 0.25$  axis 95.  $\frac{6}{6}$ .

O.S.V.  $\frac{6}{12} + 0.50 \text{ C} + 0.50$  axis 90.  $\frac{6}{6}$ .

This finding was confirmed by retinoscopy and a correction prescribed for constant wear. The day after obtaining the correction the vision in the right eye was lost also over night. O.D.V. Fingers at three feet. O.S.V.  $\frac{6}{6}$ . Fundus shows no change.

Examination reveals the presence of exquisitely sensitive hyperæsthetic areas over the right mammary, scapular and hypochondriac regions. She states that in walking or riding, exposed to the wind, induces frequently an attack of "hives" of the extremities—occasionally over the entire body. Globus and flatulence have been present, though not constantly, during the past three weeks.

Three years ago she suffered from "gastritis," lasting six weeks, followed by paralysis of both motion and sensation, lasting a similar length of time. One year ago suffered an attack of paralysis of motion only. The mother states that during both these attacks of paralysis the patient was unable to swallow solid food, feed herself or move in bed. Vision is said to have been lowered with each attack. A stomachic (acid hydrochloric in ess. pepsin) was given with instructions concerning diet, exercise and use of the eyes, and a positive assurance of recovery of the eyesight. Two days later the visual fields (Fig. 1) show white concentrically contracted; red, green and blue are transposed in the right, with a central scotoma for both red and green about  $10^\circ$  in diameter. As the red and green colors approached to within about 10 or 15 degrees of the point of their proper recognition, they were confused, calling red green and vice versa.

In the left eye the color fields are very irregularly contracted.

At this time O.D.V.  $\frac{6}{7.5}$ . O.S.V.  $\frac{6}{5}$ .

With such profound hysterical manifestations, one naturally expects relapses, but up to March 20 none had occurred, O.D.V. being  $\frac{6}{6}$ ; O.S.V.  $\frac{6}{5}$ . She was fearing she would again suffer a loss of vision.

CASE II.—Amblyopia binocular; reduced by use of a mydriatic and relieved by suggestion that the correcting lens would restore normal vision.

M. G., school boy, aged 10. Is bright, well nourished, slightly undersized, but very nervous in manner and speech. States that his vision for both distant and near work is very

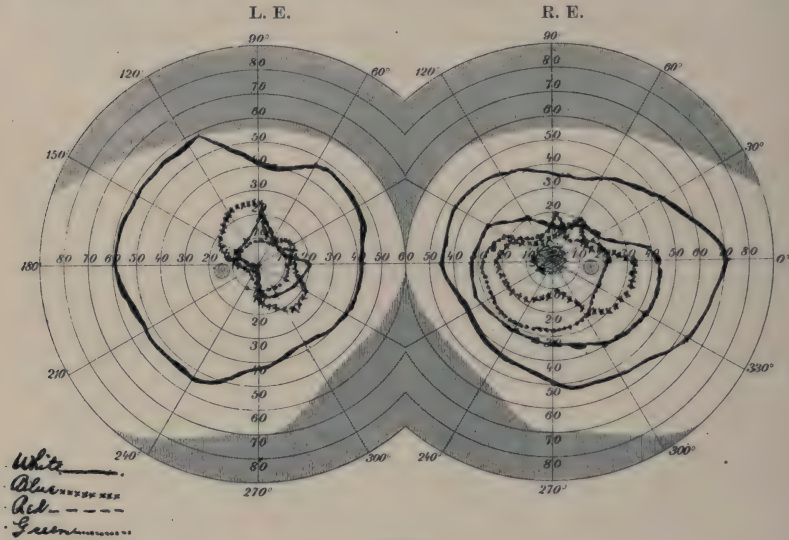


FIG. 1.

Visual fields Case I., showing concentric contraction in fields for white, irregular contraction and transposition in fields for color and central scotoma.

poor, so much so that for the past few days he has been unable to read his lessons at school.

O.D.V.  $\frac{1}{45}$ ; O.S.V.  $\frac{1}{45}$ ; pupillary reactions normal; fundus oculi normal. No improvement in vision could be obtained with any lens. After using a two per cent. solution of homatropin and cocain, O.D.V.  $\frac{6}{45}$ , + 0.50 sph. giving  $\frac{6}{5}$ . O.S.V.  $\frac{6}{15}$ , + 0.50 sph.  $\frac{6}{5}$ .

Atropia sulph. one per cent. solution was prescribed, and after repeated tests revealed:

O.D.V.  $\frac{6}{15}$ , + 1.00 sph.  $\frac{6}{15}$ .

O.S.V.  $\frac{6}{15}$ , + 1.25 sph.  $\odot$  + 0.25 cyl. axis 80  $\frac{6}{5}$ .

A reduction in the sphere of + 0.50 D. was made for con-



stant wear, and he was positively informed his vision would be restored perfectly. Two weeks later he reported with relief of the amblyopia O.D.V.  $\frac{6}{5}$ ; O.S.V.  $\frac{6}{5}$ . The visual field (Fig. 2) shows concentric contraction, with a transposition of red and green.

January 19, 1901, returned with O.D.V.  $\frac{6}{5}$ ; O.S.V.  $\frac{6}{15}$ . The lowered vision in the left eye was not relieved by his cor-

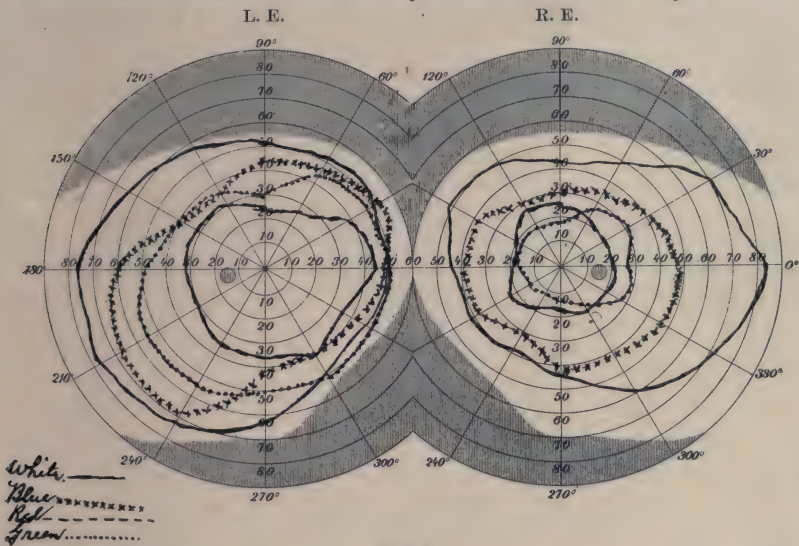


FIG. 2.

Visual fields of Case II., showing concentric contraction and transposition of red and green.

rection as worn daily, but was by the same correction in trial frame. I learned that he was reading two or three hours each evening, which I asked him to limit to one hour regularly. The visual fields were again taken and again showed contraction and transposition in the color fields. He returned in two weeks with normal vision in each eye.

**CASE III.**—Binocular amblyopia with monocular diplopia O.D: Visual field contracted and color fields transposed.

October 12, 1900, C. T., school boy, aged 10. Is quiet, slow of speech and very well developed. States that for past four weeks vision has been very low in right eye with slight frontal headaches. Right eye more recently affected and at the present time he cannot see to read his work, either near or distant, at school. He complains also of a diplopia, which persists on closing the left eye, but disappears on closing the right eye.

The visual fields (Fig. 3) are concentrically contracted and show a transposition of red and blue, very irregularly outlined in the left eye.

A very careful physical examination and urinalysis was made by the family physician, Dr. W. F. Stokes, who reported negative findings, aside from the eye disturbance.

Atropia one per cent. solution was prescribed as cyclopegic and repeated tests made covering a period of ten days, the final test showing:

O.D.V.  $\frac{6}{60}$ , + 2.00 sph.  $\frac{6}{9}$ .

O.S.V.  $\frac{6}{60}$ , + 2.00  $\bigcirc$  + 0.50 cyl. axis  $75 \frac{6}{7}$ .

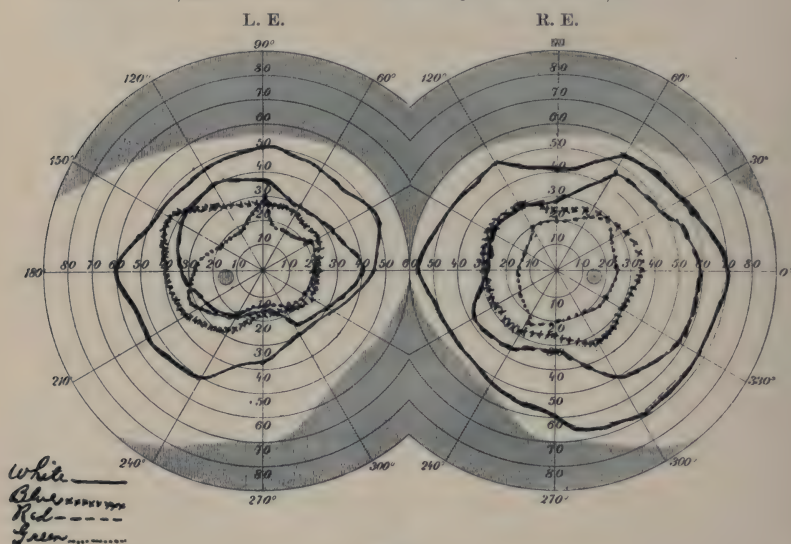


FIG. 3.

Visual fields of Case III., showing concentric contraction and transposition of red and blue.

This correction was demonstrated by the retinoscope at the first test under the cyclopegic, but the improvement in vision was gradual, each succeeding test showing improved vision. No explanation was afforded for the monocular diplopia by any finding in the refractive media or fundus.

A correction was prescribed. Four weeks later he returned with O.D.V.  $\frac{6}{6}$ ; O.S.V.  $\frac{6}{6}$ . The diplopia has been relieved. He is attending school at the present time and has had no relapse of his eye trouble.

CASE IV.—Hysterical asthenopia, “ciliary pains without findings” with emotional hysterical attacks.

B. C., aged 21, a dressmaker by occupation, September 14, 1899, complains of headache, both frontal and occipital in character. Is unmarried, well nourished and extremely nervous. The headaches are radiating in character and not accompanied by any general disturbance; lids dry and burning sensation.

O.D.V.  $\frac{6}{5}$  manifest + 0.50 cyl. axis 80  $\frac{6}{5}$ .

O.S.V.  $\frac{6}{12}$  " + 1.00 " " 90  $\frac{6}{5}$ .

Under atropia O.D.V.  $\frac{6}{15}$ , + 0.75 sph. + 0.63 cyl. axis 80  $\frac{6}{5}$ .

O.S.V.  $\frac{6}{30}$ , + 0.50 sph. + 1.00 cyl. axis 97. 5- $\frac{6}{5}$ .

No muscular imbalance of any kind was demonstrable; with the correction given vision of  $\frac{6}{5}$  was obtainable, but after a period of about six weeks the patient returned time and again complaining of the radiating pain. The refraction was again carefully reviewed and finding confirmed. A weaker cylinder and both stronger and weaker spherical corrections were tried, but all expedients were fruitless. I learned from the family physician, from whom I had the case, that he had been called to see her in repeated hysterical attacks, emotional in character, and that there were no evidences of organic disease of any kind to be found. Fourteen months after first seeing her the exaggerated headache was still present and all attempts negative in eliciting any cause therefor.

The next oculist she consulted may have made a "marvellous cure" by having gained that personal control or grasp of the patient's condition to allow of a firm suggestion being made and received; but it is my experience, where hysteria is well developed, patients are not so amenable to a suggestive measure of relief—such, for instance, as a correction for their peripheral irritation produced by the refractive error. It is true that the irritative symptoms produced by the refractive error are relieved, but so fixed have become the exaggerated symptoms that they remain after the removal of the primary cause.

CASE V.—Hysterical "contracture" (paresis?) of the ciliary muscle without amblyopia, with hysterogenetic spots, painful joints and transposition in the color fields.

March 25, 1899. H. F., school girl, aged 10; well nourished and normal development. Complains of inability to see



distinctly at near point during past three weeks. Pupillary reflex normal; slight photophobia; lamp light has a branched or blurred appearance. For past three months has complained of blurring vision, for short periods only, with headaches gradually increasing in frequency.

Fundus oculi of normal appearance. No ciliary injection; no history of any sore throat or illness of any kind during past year.

O.D.V.  $\frac{6}{7.5} = 0.50$  sph.  $\frac{6}{6}$ .

O.S.V.  $\frac{6}{6}$ .

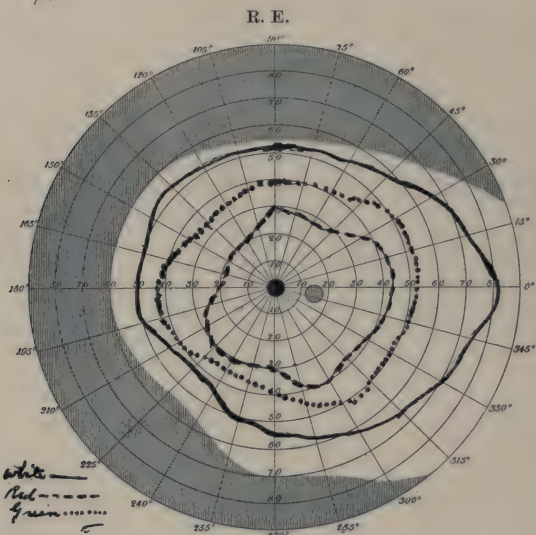


FIG. 4.

Visual fields of Case V., showing transposition of red and green in R. eye.

By placing before each eye a 2.50 D. sph. the patient is enabled to read easily small type at near point. Without them only very large type can be read.

Areas of hyperæsthesia are demonstrable on the right side, involving the mammary, scapular and hypochondriac region, also the right knee and ankle; the latter are quite as sensitive to light as firm pressure and not swollen or discolored. Temperature normal. The visual field (Fig. 4) shows concentric contraction, with complete contraction of red and green. Unfortunately the field for the left eye has been misplaced and cannot be reproduced. Hypermetropia was shown by the ophthalmoscope, and atropine was prescribed, after three days' use of which, examination shows:

O.D.V. + 1.75 sph.  $\ominus$  + 0.25 cyl. axis 180  $\frac{6}{5}$ .

O.S.V. + 2.00 sph.  $\frac{6}{5}$ .

The retinoscope revealed the astigmatism at 180 in right eye.

Two weeks later reported reading both near and distant type with the correction given. I am unable to learn if there has been a return of the trouble, as the family has moved and I cannot learn their present address. My record does not show the exact range of accommodation with the + 2.50 sphere before use of the atropia, and I am therefore unable to eliminate the possibility of the case having been one of

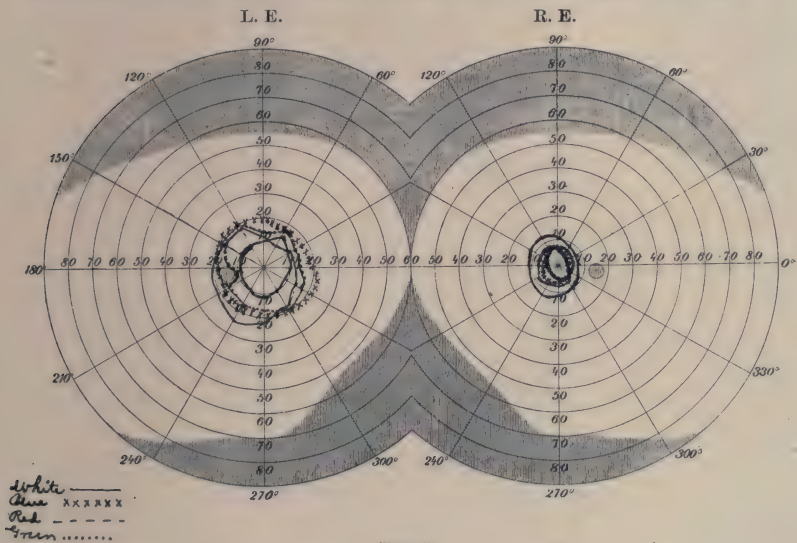


FIG. 5.

Visual fields Case VI; high degree of concentric contraction and partial transposition in color fields.

paresis of the ciliary muscle, but owing to the hypermetropia revealed by the cyclopegic, which was not discovered in the manifest reading, I am inclined to view the case as one of "contracture."

CASE VI.—Hysterical amblyopia, with recurring monocular diplopia and markedly contracted visual fields.

May 9, 1898. L. L., female, aged 14. A refractive error was corrected. O.D.V.  $\frac{6}{15}$ . O.S.V.  $\frac{6}{12}$ . Correction under atropia, giving O.D. and O.S.V.  $\frac{6}{9}$ . There was present a strabismus divergens, for which operative relief was refused. Six months later returned with a binocular amblyopia

not relieved by her correction. In the summer of 1899 the amblyopia was still present, with but short periods of relief. The O.D.V. was reduced to  $\frac{1}{60}$ ; O.S.V.  $\frac{3}{60}$ . She complains of much asthenopia on attempts at using the eye for close work. The monocular diplopia of the right eye present lasted about six weeks. The visual fields (Fig. 5) are markedly contracted. It will be observed that the fields for color overlap in many places. After finishing the examination a second field (Fig. 6) of the left eye was taken, which shows increased restriction, indicating the retinal exhaustion so frequently present in these cases.

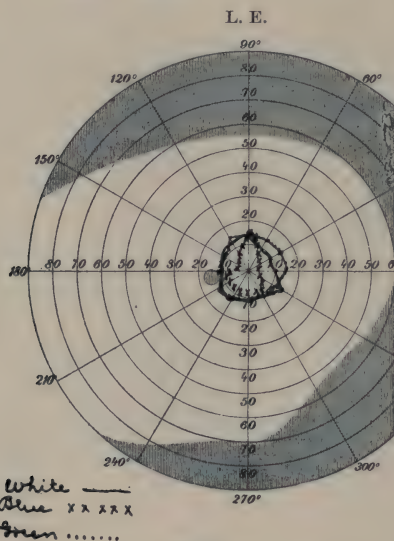


FIG. 6.

Visual fields of L. E., Case VI., shows the contraction following use of the eye, being taken  $\frac{1}{2}$  hour after field shown in Fig. 5.

During the summer of 1900 the patient consented to a tenotomy for the relief of the divergence. Both external recti muscles were tenotomized and parallelism obtained. Shortly after this diplopia appeared, which, on examination, was shown to be again monocular, this time involving the left eye. The false image, slightly hazy, was always symmetrically placed to the left and slightly above the true. Under a mydriatic no cause for the diplopia was discovered. During 1900 the amblyopia was accompanied by a photophobia, rendering ophthalmoscopy almost impossible at times. The fundus has shown at no time any active changes; a small



atrophic, pigmented, choroidal spot was observed in the nasal side of the right fundus, which has remained unchanged during the two and a half years she has been under observation. A variety of convulsive seizures, answering a description of hysteria, have been present for about three years; typical globus and gastric distress have frequently been present.

April 4, 1901, I last saw the patient. No photophobia was present; the eye grounds remain as at previous examination; O.D.V. and O.S.V.  $\frac{6}{45}$  with the correction; by placing indifferent lenses, such as plane, 0.12 + and —, in succession before the eye, suggesting improvement with each, a vision of O.D. and O.S.  $\frac{6}{9}$  was obtained. I had hoped by the suggestive influence of the operative procedure to permanently relieve the amblyopia, but the relief obtained was only temporary. The home rule of this patient is bad. She is exceedingly willful and the mother says she is unable to control her in any way. A change of home surroundings would, I think, prove beneficial.

CASE VII.—Hysterical asthenopia; concentric contraction, transposition in color field and a scotoma in field for white only; partial ptosis.

H. H., 34, female, unmarried, in good general health. Complains of headache, frontal and occipital in type, aggravated by close work or reading. Has a partial ptosis, overcome at times by great effort. Occasionally complains of extreme blurring of distant vision. During the past year has lost a near relative and an unusual grief has been exhibited. Emotional hysterical attacks reported by the family physician. Pupillary reflexes are normal; slight photophobia present. Ophthalmoscope reveals normal eye grounds. O.D.V.  $\frac{6}{6}$ , reads very hesitatingly; after testing a few minutes, cannot read better than  $\frac{6}{7.5}$ . O.D.V.  $\frac{6}{9}$ . Similar blurring on use of the eye, vision then being  $\frac{6}{12}$ . No improvement with the lens. The ophthalmometer shows O.D. 1, axis 180. O.S.  $\frac{3}{4}$ , axis 30. Visual field taken with following results (Fig. 7): O.D. field for white, slight contraction; blue, red and green contracted and transposed. O.S. contraction with scotoma for white in the temporal field outside the field for color. Color transposed and irregularly contracted. Under mydriatic (homatropin and cocain used both December 28 and 29) examination shows:

O.D.V.  $\frac{6}{7.5}$ , + 0.25 sph.  $\odot$  + 0.25 cyl. axis  $10\frac{6}{6}$ .

O.S.V.  $\frac{6}{18}$ , + 0.50 sph.  $\odot$  + 1.00 cyl. axis  $165\frac{6}{5}$ .

At the end of one week returned with much improvement. The headaches were decidedly benefitted; the visual fields were not so restricted, the scotoma had disappeared. At the present time I learn that the improvement continues. I report this case as a contrast to the continuance of the exaggeration symptoms shown in case number four. In other particulars they were very similar.

In conclusion, I wish to call attention to the following facts:

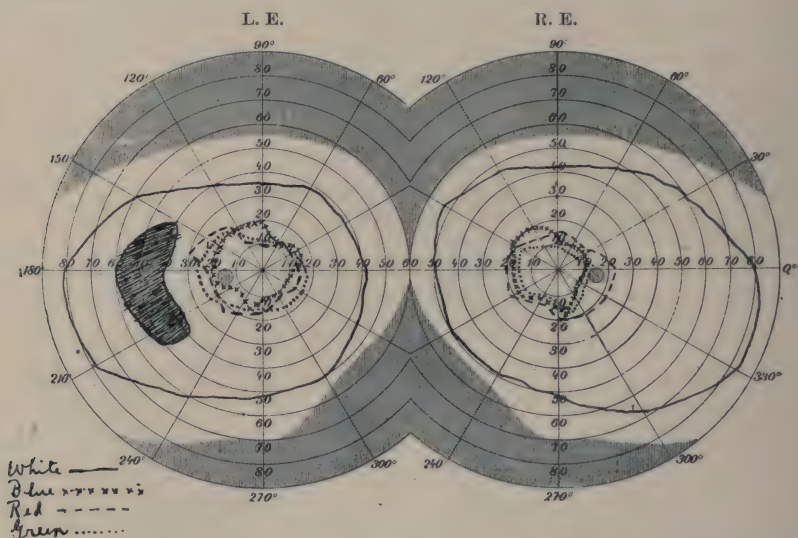


FIG. 7.

Visual fields Case VII., concentric contraction, transposition for colors and a scotoma for white in L. E. only.

In six of the cases the visual fields show contraction with transposition in the color fields. In one only is shown a central scotoma for red and green confined to but one eye. In one case a scotoma for white only.

The ages of the patients range from ten to thirty-four years; but two are males.

The cases comprise two of asthenopia, one of contracture of the ciliary muscle, and four of amblyopia; of these latter two were attended with monocular diplopia. In one only were other symptoms of hysteria absent.

In two cases improvement has been only temporary; one

final result unknown; four under observation, relieved from the active manifestations.

Errors in the refractive index were present in all the cases. That this had any determining influence in localizing the affection in the eye I am not certain, but believe such is frequently the case, the irritation incident to the eye strain being sufficient to act as the exciting cause.

#### BIBLIOGRAPHY.

- Manual of Diseases of the Nervous System: Gowers.  
The Eye in Relation to General Diseases: Max Knies (Noyes).  
Text-Book of Ophthalmology: Fuchs.  
Amblyopia (hysterical) in Children: Bruner, Oph. Rec., Chicago, VII., 1898.  
Hysterical Monocular Amblyopia: Prince, Am. Jour. Med. Sciences, 1897, Vol. CXIII.  
Contraction Visual Fields and Disturbed Color Sense (traumatic): Van Allen, Medical Annals, 1898, XIX.  
Booth, Med. Rec., 1895, p. 256.  
Priestly Smith, Oph. Rev. III. 139, et al.  
Visual Area of the Brain: Starr, Am. Jour. Med. Sciences, Jan., 1884.

#### DISCUSSION.

DR. S. C. AYRES, Cincinnati, O.—I have had quite a number of these cases. The Doctor spoke in his paper about the sudden disappearance of the amblyopia. I remember two cases of this kind occurring in two young ladies. In one of them before making the ordinary tests I found one eye very amblyopic and the other normal. I used a mydriatic and to my surprise found both eyes normal. In the other young lady there was a history of amblyopia from childhood, and to my great surprise in this case this condition disappeared under the influence of a mydriatic. I have found these disturbances occurring in young ladies with some menstrual trouble or who were under some mental excitement. I recall a lady whom I examined for some error of refraction, myopic astigmatism. In a few days after I had fitted her with glasses she told me she could not wear them at all. She came to the office and with the test glasses I found her central vision perfect, but her field of vision concentrically contracted to about 10 deg. She had some uterine trouble, was operated upon for it and the difficulty disappeared. I recall another case in a young lady whom I treated for some corneal trouble. She had keratitis and got well. It was a prolonged case, but she



went home after a while, coming back later on, stating that her trouble had returned. I examined her and there was not a sign of trouble on the cornea. Her grandfather (who was a physician) was with her, and I explained the situation to him. She had some menstrual trouble. I said to her: "You are going to get well quickly, but I shall have to hurt you a little." I picked up a strong speculum and put it into the eye and allowed it to open as widely as it would and kept it there as long as I felt like punishing her—a few minutes only. The next morning I repeated this treatment and she said she was very much better, and on the following morning she said she was perfectly well. I gave her two treatments and completely relieved her. These troubles are either hysterical due to inhibition, or some reflex cause—a question which I will not settle.

DR. DUDLEY S. REYNOLDS, Louisville, Ky.—I have seen a number of cases of reflex disturbances in the eyes, and my experiences have been somewhat similar to those of the last speaker, but I have never tried the speculum, I think it misleading for us to conclude with the essayist that contractures of the ciliary muscle are indicated by a merely manifest, or apparent fixation of both eyes for any distance. In other words, absence of the power of accommodation, either with or without amblyopia, is not sufficient within itself to indicate disease of the ciliary muscle. I have seen a great many cases of this kind relieved promptly by general medication, especially in miasmatic conditions. I would like to suggest that the ciliary muscle is made up of two sets of fibers, and when we speak of contractures we mean a permanent condition of contraction in the muscles due to organic change of structure. This necessarily means that the nutrition of the structure is impaired, and nothing can overcome this structural change in the muscles. With the ciliary muscle in a state of permanent contraction, no test of refraction would be possible. I feel sure such conditions could not belong to the domain of hysteria, or any of those reflex neuroses found most frequently in women, and at times in men. There are, however, frequently observed conditions of spasm of accommodation, in which amblyopia seems to exist, in which a mydriatic affords relief from the pain, and discloses the error of refraction which caused it.

I had a very remarkable case of this sort of trouble in a young man, who gave up a position in the railway service because of increasing amblyopia, which disabled him from reading the coarsest type. Searching examination disclosed hyperopic astigmatism. The correction of this condition relieved him entirely.

Another instance I wish to relate is that of a young lady, aged 19 years, who had graduated from a first-class academy, and who came to see me about her eyes. She had been subjected to prolonged mental strain in her school work, after which she came home and entered society, lost a good deal of rest, and suddenly discovered she was blind. An examination showed pale, mottled, cedematous disc, with sight =  $\frac{6}{60}$  Snellen. A note to the family physician brought out the fact that she was subject to chronic constipation, and had disease of the rectum, relief from which removed all the eye symptoms. She had no error of refraction. Although unable to read any print when I first saw her, her acuity of vision was perfect as soon as the intestinal trouble was removed. After this she had no use for the glasses which she had been wearing at the suggestion of a confrère.

Discussion by Dr.—(Name not known.)—These cases of course are quite commonly seen, some phases being more commonly met with than others, especially amblyopia. I had one case which was of particular interest to me because of the manner in which the extra-ocular muscles of the eye were affected. I looked up the literature pretty carefully but could find nothing reported of a similar nature to my case. I presume, however, all of these cases vary in details very much, according to the individual. The patient was a woman who was brought into my office as being perfectly blind; she said she could see nothing, could distinguish between light and dark, but when I attempted to have her count fingers, she could not count them at all. She gave a history of having had this trouble come on her suddenly four or five days before seeing me. She said she was taking a nap in the afternoon, and when she awoke she found she could not see, and this had persisted. The peculiar feature in connection with the case was the manner in which the extra-ocular muscles were affected. By the use of suggestion I could get her to look at

the letters and finally to read  $^{20}/_{20}$ , but I could not get her to control the movements of the eyes. In telling her to look up one eye turned up markedly and the other turned down. In telling her to look to the right one eye turned toward the right, the other remained stationary, or deviated a little to the left. By covering one eye and telling her to follow the finger with the other eye the motion was found perfect in all directions for both eyes. All through the time of her examination this particular condition persisted. She was referred to me by a physician with the idea that there was something very serious the matter. I cured her and the physician refused to report any further in the case.

DR. W. L. DAYTON, Lincoln, Neb.—I believe that the idea that the doctor has brought out in his paper of doing away with the name of hysteria in conversing with our patients or their friends, the doing away of this nomenclature, is the proper thing. I believe that we should guard against this the same as we would in telling patients that they have an incipient cataract, that they may or will become blind, for we have all had cases of incipient cataract, which we have diagnosed, and which have remained in statu quo and never advanced. Again, the laity have in their minds the fact that hysteria is nothing, and to our shame it may be said that the physician laughs at it, and says when the subject is brought up: "Oh, that is nothing." Of course it is becoming more and more the case that the better class of physicians realize the fact that hysteria is a condition due to some morbid state of the human being, and for that reason I most gladly acquiesce in the doctor's recommendation that we dispense with the name hysteria in conversing with the patient or the family.

We have all had cases such as have been brought before us to-day, and many are the ways and means which we have adopted to cure them. I have found that suggestion answers well in some cases. Hypnotism I have also tried. In some of these cases I have found that a slight error of refraction was at the bottom of the trouble. In one instance a young lady of 16 years was referred to me by the principal of one of our schools. He said she was of no account in school and could not see at all. After a most thorough examination I



found nothing wrong. While she could not see  $22/200$  without glasses, yet she could see  $20/20$  with plain lenses. We resorted to all manners of schemes and tests to relieve this condition, and at the same time assured her that all would be well. The girl for six or eight weeks has been wearing glasses, which are very weak; perhaps there is  $1/2$  dioptry of astigmatism and are slightly off from the regular angle of meridian; just what I do not now remember. She has, however, been wearing the glasses and attending to her school duties ever since with no further trouble. Of course we have very many cases, from amblyopia to affections of the extrinsic muscles.

DR. F. A. PHILLIPS, Chicago.—In conclusion I will make a very few remarks. I tried in my essay to make clear what was meant by peripheral irritation; by this I do not mean an irritation which is confined to the eye, as it may be systemic, the influence of constipation, uterine disease, etc. All of these causes must be looked into, and many of these cases of hysteria can be relieved by attention to these irritations. I do not know what the exact cause of the change in the vision is. We cannot explain that. The speculum treatment mentioned by Dr. Ayres, to my mind, is one means of applying suggestion—a suggestive therapeutic measure. In reference to contracture of the ciliary muscle, I do not mean to imply thereby any structural change in the ciliary muscle, but a purely functional condition. Charcot has described such a condition of the ciliary muscle which he called “contracture,” and it is to this that I refer. I will refer to Case V. of my series here reported as showing that no such structural changes were referred to. Regarding refractive asthenopia, we all of us in our refractive work meet with many of these cases, but we do not find such fields of vision as I have here outlined. I have taken the visual field in many of these cases as a means of proving to myself whether they were due to merely reflex cause or were hysterical in their origin; and the visual fields have invariably shown none of the concentric contraction or transposition in the color fields so characteristic of hysteria. By the term asthenopia, as used in my essay, I do not mean that variety, therefore, that is associated with refractive errors or muscle defects only, but in which characteristic hysterical symptoms are also present.

## TWO NEW INSTRUMENTS.\*

By SAMUEL THEOBALD, M.D.,

Clinical Professor of Ophthalmology and Otolaryngology, Johns Hopkins University.  
BALTIMORE.

IN one of his papers upon operations for cataract, Dr. Knapp, if I am not mistaken, has pointed out that, in comparing the relative advantages of the simple and the combined methods of extraction, it must not be lost sight of that incarceration of the iris in the corneal wound is a complication not wholly limited to the operation without iridectomy; but that, in spite of our efforts to avoid it, it occurs occasionally in, and measurably mars the results of, combined extraction as well.

If the outcome of an iridectomy done under such circumstances is not invariably all that could be desired, it goes without saying that when it is performed upon an inflamed or degenerated iris—for the control, perhaps, of glaucoma or irido-cyclitis—we are still less sure of securing the classical result which we find pictured in the books. In a word, I think it will be admitted that our iridectomies are not always just what we might wish them to be. They are seldom the key-hole affairs which the illustrators have made us familiar with; and, though extensive incarceration may not be of frequent occurrence, it is not uncommon to find one margin of the coloboma different in shape from the other, or lying in a different plane, indicating, at least, a slight adhesion between the iris and the inner lip of the corneal section.

Some months since the idea suggested itself to me that by reversing the usual curve of the iridectomy scissors, so that, instead of the convex surface, the concavity of the blades should be applied to the convexity of the corneal border, a better mechanical effect might be obtained, and a cleaner, more perfect coloboma be secured.

I intrusted the carrying out of this idea to Mr. Neuhaus, one of our Baltimore instrument makers,† and the scissors shown you, made after a model which I furnished him, are the result of his handicraft (Fig. 1.) He has also made me a pair with the ordinary scissor handles, and doubtless they

\*A paper read before the American Ophthalmological Society, July, 1891.

†Chas. Neuhaus & Co., 510 N. Eutaw St., Baltimore.

could be made in the fashion of De Wecker's scissors, if desired.

They are not well adapted to the making of an iridectomy by several successive cuts; but for the purpose for which they were intended—the removal of a piece of iris by a single cut—I have found them to be all that I anticipated. I have used them in cataract extractions and in iridectomies for glaucoma and for various other purposes, and have been convinced that a more perfect coloboma was obtained; that the iris was more cleanly removed up to its ciliary attachment, and that adhesions between the iris and the corneal wound were to a great extent obviated.

The other instrument which I wish to bring to your notice

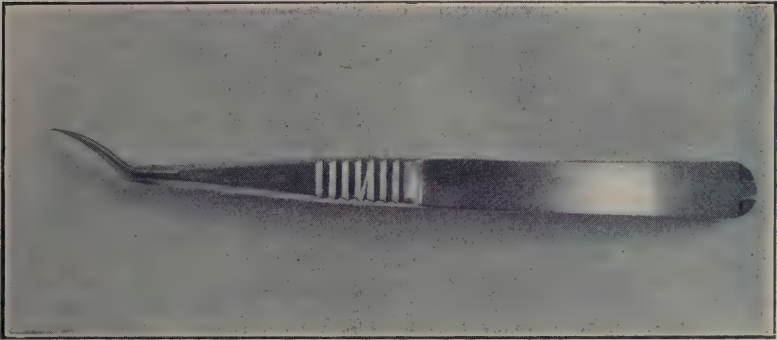


FIG. 1. (About  $\frac{3}{4}$  actual size.)

is a lacrimal probe, contrived for a special purpose, and intended to supplement the large probes which I have employed for many years.

As I have had occasion to point out heretofore, in the later stages of the radical treatment of strictures of the lacrimal duct, when the interval between the probings has been increased to several weeks, it occasionally happens that a contraction occurring at the juncture of the canaliculus and the lacrimal sac makes it difficult to insinuate into the sac the large probe which had been passed previously without difficulty.\* I have also dwelt upon another class of cases, in which the existence of a firm constriction at this same point complicates and retards the early stages of the probing treatment, making it difficult or impracticable to introduce other

\*Diseases of the Lacrymal Apparatus. Norris and Oliver's System of Diseases of the Eye, Vol. III.



than a quite small probe into the *sac*, though a considerably larger one, could it be gotten through this constriction, might be passed easily through the strictures in the duct itself.

The probe (Fig. 2) which I show you was devised solely to meet the conditions existing in these two classes of cases—to accomplish the rapid and effectual dilation of strictures or contractions at the juncture of the canaliculus and the sac, and thus permit the passage of the ordinary probes. For probing the duct, itself, it is manifestly unsuited. For several mm. from the tip, as you will see, it is quite slender, and then dilates rapidly to a much larger size. The exact size is not a matter of much moment; but I have fixed upon No. 12

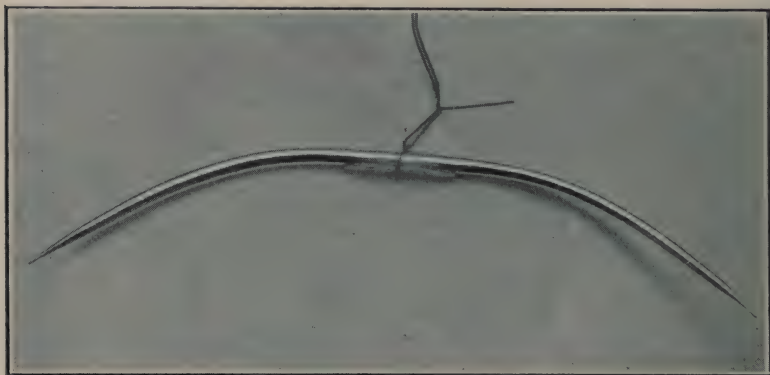


FIG. 2. (About  $\frac{2}{3}$  actual size.)

and No. 14 for the larger portions and No. 3 for the slender part near the ends. It bears some resemblance to the well-known conical probe of Weber; but a comparison of the two will show that they differ materially. Weber's probe increases in size so gradually that its whole length must needs be passed into the duct to accomplish what this one will effect when introduced but a third as far.

It remains but to add that an experience extending over some months has convinced me that it meets the conditions for which it was contrived, and that it has proved distinctly helpful.\*

\*The Chas. Willms Surg. Instrument Mf'g Co., Howard and Saratoga Sts., Baltimore, have made this probe for me in a very satisfactory manner. Mr. E. B. Meyrowitz, 104 East Twenty-third Street, New York, also has undertaken to make both the iris scissors and the probe.

# ANOTHER WORD OF DISCUSSION ON DR. ALT'S PAPER ON OPHTHALMIA NEONATORUM.\*

By DR. LUCIEN HOWE,  
BUFFALO.

IN the last number of the JOURNAL OF OPHTHALMOLOGY an extended account is given of the discussion of Dr. Adolf Alt's paper on *Blennorrhœa Neonatorum*. The one who opens that discussion begins by saying, if he is rightly quoted, that he wishes "to protest earnestly against the prevalence of meddlesome interference with the eyes of the new born," and also that "there is no sense in medicating the sound uninfected eyes of the new born."

The next is quoted as saying "that he never allows the Credé method to be used without his consent," although it is evident from the context that he is in some doubt as to just what the Credé method is.

In general, the tenor of the discussion is by no means to accord with opinions which some other practitioners, at least, have long considered to be based on well-established fact.

In view of this a further word or two may be permissible.

The first observation which I venture to make is that the prevention of ophthalmia neonatorum in itself is a subject in regard to which the ophthalmologist is not qualified to speak at all. That is a question for the obstetrician, and he alone is competent to judge concerning it. Any conclusion arrived at concerning the value of Credé's method, or any other method, must be based on the combined experience of obstetricians.

Second. We now have the results of this combined experience, accurately recorded by different observers in different parts of the world. It has been published at different times, as various additions have been made to it, either in the number of children who developed ophthalmia without any treatment whatever, or after Credé's method or after other methods. One of the best papers on this subject is by Kostling of Halle, in the *Archiv für Gynækologie* for 1896. These figures and others are too well known to require repetition, though it may be worth while to mention that even at that time the obstetricians, summing up their experience,

\*AM. JOUR. OF OPHTH., June, 1901.

found that out of 17,767 children who received no prophylactic treatment, ophthalmia developed in nine and two-tenths per cent. (9.2), whereas among 24,724 children who were treated by the Credé method only sixty-five hundredths per cent., or a little over one-half of one per cent. developed the disease. Such facts require no comment.

Third. It is true that when any such treatment produces an inflammation of the eyes, even a slight conjunctivitis, it then becomes a subject about which the ophthalmologist may have some opinion. But in forming such an opinion the number of eyes which would have been destroyed or injured by ophthalmia neonatorum, but which are saved from the disease, should be compared with those which are known to have been destroyed or injured by the prophylactic treatment, and the verdict must be given in favor of that form of treatment which saves the greater number of eyes.

While it must be admitted that one drop of a two per cent. solution of silver nitrate will often produce an annoying conjunctivitis, it is also true that there are now in the literature only four, or at most five, cases in which real harm can be distinctly and unquestionably traced to that cause. Two of these were found by Cohn in response to a circular letter of inquiry, very widely distributed; there is one by de Schweinitz of bleeding, another by Pomeroy and another doubtful. It must be remembered also that in one case reported by Hofmeier ulceration has followed the use of sterilized water. Perhaps some of those who joined in the discussion mentioned can enrich the literature by adding other cases in which real harm actually did result from the use of silver nitrate. If so we would all be much interested to know the exact facts with the details.

Fourth. No one would contend that the so-called Credé method is the best prophylactic which ever will be available. The obstetricians are still at work at this phase of the question. We all hope that from weaker solutions of silver, or from protargol or from other agents, they can yet report to us equally good results in a large number of cases. Until they can do that, however, we must accept the statement that a single instillation of a two per cent. solution of silver nitrate, in all cases, is the most effective method of preventing ophthalmia neonatorum.



Fifth. Until ophthalmologists can show that the harm done by this method is greater than the certain good which it accomplishes, or until other data are obtained which alter the present status of this question, it is the duty of us all to popularize among the profession and the laity the facts which are now at our command. These facts have been summarized by Prof. Dimmer as his last word on the subject, so well quoted by Cohn, namely: Purulent ophthalmia of infancy can and must be wiped out of every civilized country.

#### A FEW WORDS IN ADDITION TO DR. HOWE'S PAPER.

By ADOLF ALT, M.D.

IF I am not mistaken, the standpoint concerning the Credé method taken by Dr. Howe is in so far correct, as in lying-in hospitals, where all sorts and conditions of women bring their offspring into the world, a most rigid prophylaxis is not only the correct thing but even demanded. Whether a two per cent. silver nitrate *only* will do the work, or not, has to be shown by future experience.

It is different, however, in private practice. Here the obstetrician has usually a good knowledge of the conditions of the passage through which the baby has to come. *He*, then, it seems to me, is the man to say in this case a prophylactic instillation into the eyes of the newly-born is necessary; and in that case there is no need of such measures.

The oculist, in most cases, can but help to make all those who are connected with the confining of the women aware of the good of prophylaxis where it is necessary. In by far the largest number of cases, if not in all, he sees the blennorrhœa neonatorum as a fully developed disease, and then is called upon to treat it. This is a totally different duty from that of the obstetrician and his assistants.

In this particular I agree fully with Dr. Howe's remarks. As to the necessity of a two per cent. nitrate of silver solution for prophylaxis or treatment, I have given my opinion in the paper which elicited this discussion. I have, since reading this paper, treated several cases of blennorrhœa, and among others an extremely severe one with ulceration of both corneæ, in which the instillation of a two per cent. solution of protargol, instilled by a physician three times a day, cured the affection in twelve days and the ulcers were healed.

I certainly believe in appropriate prophylaxis; with regard to the treatment I have nothing to add to what I have said.

## ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### ALBUMINURIC RETINITIS AND URÆMIC AMAUROSIS, WITH ESPECIAL REFERENCE TO THEIR OCCURRENCE IN PREGNANCY.

Edmund W. Clap (*Boston Medical and Surgical Journal*, July 11, 1901) says that albuminuric retinitis and uræmic amaurosis are rare conditions in pregnancy, but very important when they do occur.

“Albuminuric retinitis is a disease accompanied by immediate visible changes in the eyes. Albumin is always present in the urine. It may occur at any time during pregnancy, especially beginning during the first two months or after the sixth month. Its prominent symptom is gradual failure of vision. It is very apt to recur in successive pregnancies, though not necessarily. Blindness is almost never caused by the first attack, but more and more damage is done by each recurrence. Uræmic amaurosis is a disorder of the visual apparatus not accompanied by immediate visible signs in the retina, although it may finally lead to atrophy. It occurs late in pregnancy, usually with other signs and symptoms of eclampsia, so that it seldom has to be considered alone. It apparently never destroys vision by the first attack. Like albuminuric retinitis, it is very apt to recur in subsequent pregnancies. The treatment of both conditions is the treatment of the albuminuria and non-use of the eyes, enforced by atropine and dark glasses if necessary. The prognosis of uræmic amaurosis as to sight is favorable for the first attack, and less and less so for each succeeding attack; but the importance of this is usually overshadowed by the uræmic condition present. The prognosis of albuminuric retinitis as to sight is favorable for the first attack, if occurring after the sixth month, but grows worse if it occurs in succeeding pregnancies. Prognosis for sight is bad if it comes on earlier than the sixth month, especially if it begins during the first two months; and in these cases great danger to both child and mother may be expected from eclampsia. As to abortion or premature labor, we are seldom called on to consider it for the

preservation of sight alone, since so many and such grave dangers are present to both mother and child from uræmia. If we consider the preservation of sight a cause for premature labor, then it may have to be done in uræmic amaurosis recurring in successive pregnancies, with progressive loss of sight, the degree of impairment of sight and the amount of damage done to the optic nerve deciding the question. In retinitis albuminurica occurring early, abortion should be considered if the retinitis is of a severe type, especially if hæmorrhagic, or if a slight retinitis progresses under treatment, remembering that in these cases the life of the child is uncertain any way, and the mother runs grave risk of eclampsia if the pregnancy goes on to term. In retinitis coming on after the sixth month it is best to wait and watch carefully, especially in a first attack, and not to induce labor unless some other albuminuric symptom demands it. In the subsequent attacks the damage to vision and the severity of the retinitis may turn the scale in favor of premature delivery, even when slight eclamptic symptoms are present."

NOTES ON THE BACTERIOLOGY OF THE CONJUNCTIVAL SAC  
AND ITS BEARING UPON SURGICAL PROCEDURE.

P. Chalmers Jamison, after a thorough study of the subject, draws the following conclusions:

I. That the pyogenic or pus producing organisms are found in the normal conjunctival secretion, although probably in attenuated form.

II. That under normal conditions they do not propagate.

III. That the eye under normal conditions is bountifully supplied with means of antagonizing bacterial growth.

IV. That diminished resistance such as occur in inflammations of the membrane in operative interference, alter the nutritive nature of the secretion and probably convert it into a more suitable medium for germ life.

V. That the secretion of the eye is not an antiseptic in itself.

VI. That strong antiseptics in the conjunctival sac diminish the resistance and place the eye on a lower plane to resist germ invasion.

VII. That much attention should be given to washing out the residual bacteria prior to operation.

VIII. That as much care should be taken in regard to an-



tiseptics and cleanliness in the external preparation of both patient and operator, as is adopted by the general surgeon of modern times, as, while the danger of suppuration is more remote, the result if it occurs is more disastrous.

#### REMARKS ON THE TREATMENT OF THE TEAR DUCT.

Albrand (*Deutsche Medicinische Wochenschrift*, April 4, 1901) recommends that the patients be taught to use the sound themselves after operations upon the tear duct. The difficulty is, however, that they are likely to grow tired of this and give it up, and so require renewed dilatation. Valpinus' permanent sound is oftentimes used with much satisfaction, but many patients cannot bear it. It not infrequently causes marked pain in the nose. He considers extirpation of the sac most satisfactory in cases of long duration with more or less profuse muco-purulent secretion, in all cases with fistula, in those with changes in the periosteum and with caries of the bone, in those resulting from the action of caustics or from trauma, in cases with prolonged conjunctivitis, ulcerations of the lids, and in trachoma. It should also be undertaken in less severe cases in which social reasons indicate its use, *i. e.*, in patients who must work constantly for a livelihood. In such cases it saves the patients much valuable time. He has attempted for prophylactic reasons, as, for instance, preceding cataract operations, to close the tear duct by touching the openings with a glowing needle. He never succeeded in this, however. He insists that the nose must always be carefully examined in cases of disease of the tear duct, as not infrequently some nasal condition is the cause of the continuous trouble with the tear duct.

#### THE ECONOMIC VALUATION OF VISION.

H. V. Würdemann and H. Magnus (*Annals of Ophthalmology*, April) show that a correct estimation of the effect of injuries to the visual apparatus upon the earning powers may be obtained by a simple mathematical calculation. The complete earning ability depends upon three factors: "1. The unimpaired functional power of the bodily organs. 2. The technical knowledge necessary for the carrying on of the vocation. 3. The ability to compete in the labor market. Normal physiologic vision consists of a series of different factors, *i. e.*, the central acuity, visual field, light and color sense, adaptive faculty, muscular movements and cerebral processes

all acting together to produce sight. Each of these numerals is given its specific and relative value in the equation, the whole sum equaling normal physiologic vision. Although the formula given is a rather heavy mathematical one, its handling is extremely easy, for we simply replace its several factors by the value of the function. Thus, if all be uninjured, the earning ability = 1, the valuations are very easily determined by looking at the tables which have been compiled by Würdemann and Magnus, or by estimation by a diagram; thus the calculation involves but a simple example in multiplication and takes but a few minutes' time. There is a considerable difference between the scientific definition of blindness and that of economic blindness. The highest and lowest points of scientific visual acuity do not correspond to those used in business; *i. e.*, a day laborer may have his visual acuity reduced to as low as 50 per cent. of normal, yet be able to continue his work just as well as before, but if it were reduced below 5 per cent. of normal he would be unable to do any of his work; in the case of a skilled workman, the reduction to any marked extent would greatly interfere with the work, and thus a skilled mechanic could not lose more than 25 per cent. of his visual acuity without economic damage, and if he should be reduced to 15 per cent. he could not do any of his work. From the results of experience and of mathematical calculation by means of this formula, it is clearly shown that in trades demanding high vision a one-eyed person loses 30 per cent. of his earning ability for the first year after the accident and 20 per cent. thereafter; for the lower grades it is 27 per cent. for the first year and 18 per cent. thereafter. Where there is a gradual loss of sight in one eye following an accident, in trades requiring higher visual demands, the proportion is 21 per cent., and in professions with lower visual demands 18 per cent. The question of claim for damages by reason of the loss of one eye through accident is exhaustively discussed, as well as specific injuries affecting the visual field, color sense, or causing weak vision in any way. Consideration is likewise given to weak vision existing before the accident. The economic damage to the individual from loss of vision through accidents depends on the percentage of the loss of earning ability, on the wages that the plaintiff has been earning and on the character of his work and his age. Tak-

ing these facts into consideration, and accepting certain wage standards and probable duration of working life and the percentage of economic damage as factors, the damage to the individual can be exactly shown in dollars and cents. The settlement of claims for damages should take this economic damage into consideration as the principal element for settlement. This, however, is only one of the legal factors involved. It should be modified according to American law by reduction being made in favor of the defendant in case of extenuating circumstances or contributory negligence, and addition made thereto of actual expense incurred by the plaintiff during his illness and damages for pain and anguish suffered by reason thereof; the amount thereof must always be empirically estimated by the courts.—*Jour. A. M. A.*

#### TUBERCULOSIS OF THE IRIS.

William F. Mittendorf (*Medical News*, May 25) describes the different forms, which are sometimes primary and sometimes secondary. They may be divided into the solitary and multiple forms, and the latter again into the acute and chronic. As a rule it is a disease of youth or middle life, and one eye only is usually affected. In the first class there is usually tuberculosis in the general system; however, not necessarily of the lungs; it is characterized by the development of one or more grayish nodules in the iris, early appearance of ciliary injection, and intense pain in the eye and forehead. The disease rapidly advances, impairing the vision, and the eyeball may become filled with tubercular matter, which frequently necessitates enucleation.

Another form occurs in the early stages of pulmonary tuberculosis, and runs a slow course. It may last several months and be entirely relieved with the general improvement of the patient.

The third form is very serious and usually leads to the loss of the eye. There is a single tubercular deposit at the bottom of the anterior chamber, involving the ciliary body, which is very painful, and as the tumor develops presses on the cornea, which soon breaks down. Even this type may yield to treatment and some sight be preserved.

As to treatment, the author does not believe in iridectomy, and if the disease resists the usual local and internal treatment an enucleation is frequently advised, to relieve the pain and, if possible, prevent the infection of other tissues.



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## ORIGINAL ARTICLES.

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### A NEW SET OF LACRYMAL SOUNDS.

By CHAS. H. BEARD, M.D.,

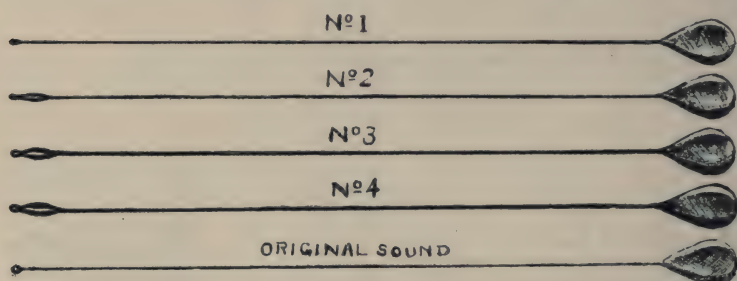
CHICAGO,

Surgeon to the Illinois Charitable Eye and Ear Infirmary.

ABOUT a year ago, wishing one day to probe the lacrymal canal in a case of simple epiphora, it so happened, while looking around for a suitable instrument, that my eye lighted on an ordinary gold temple-wire of a pair of spectacles. It struck me at once that there was the very thing. The wire chanced to be of the lightest grade—quite elastic—and the ball at the end was of the tiniest and smoothest. After straightening and thoroughly cleansing my improvised sound, and slightly dilating the punctum, I proceeded to try it. Not only was I delighted but even astonished, both on my own and the patient's account. The little knob seemed to guide the wire through the windings of that canal like a thing of intelligence.

As a result of this experience I had fashioned, by a manufacturing jeweler, the set of sounds represented *actual size* in the accompanying illustration. Numbers 1 and 2 it was thought best to have made of ten carat gold, as this has greater strength, hardness and elasticity than the finer metal, to say nothing of the lesser cost; whereas numbers 2 and 4,

being of larger size, both as to spindle and wire, and destined for other service—namely, only in cases where Bowman's operation has already been performed—are made of eighteen carat gold. The old spectacle wire was of ten carat gold, and as it proved to be so admirably adapted to its new use I had it cut to the desired length and a handle put on to make it conform to the others. As will be seen by the cuts, it is identical with the one shown at the top, excepting that its knob is of somewhat greater diameter—1 millimeter—and perfectly round, while No. 1 is slightly elongated. These two are excellent for purposes of exploration of the lacrymal canal; but for systematic treatment, as, for example, of stenosis from swollen lining, from cicatricial bands, etc., those with fusiform terminals are to be preferred. They pass both backwards and forwards through the narrow places with much



greater ease as regards both operator and operated, and they can be insinuated more gingerly and certainly into such places with the view to local dilatation. Indeed, one of the chief advantages in the employment of these sounds is one's ability, owing to the peculiar form of the instrument, to feel along, as it were, for obstructions, and thus to locate and deal with them by passing the spindle back and forth through them—a procedure not possible with rigid sounds or those that are cylindrical and of uniform or nearly uniform diameter throughout. The friction, instead of being *all the way long*, is practically confined to the enlarged portion only, yet the *effect* is that of a probe of the diameter of said enlargement; hence traumatism and discomfort are both minimized.

In the manufacture of these sounds the strictest attention should be given to minute detail of form. To mention a few

points, for instance, the bulb on No. 1 and the entering or guiding bulb on No. 2 should not exceed  $\frac{3}{5}$  millimeter in diameter, and both should be neatly rounded. Then, where bulb joins spindle, and where spindle joins shaft, there should never be an abrupt curve, but one part should be made to pass into the other by almost insensible degrees. As to the wire for the smaller sounds, it cannot be too springy, but ought not to be of greater thickness than  $\frac{2}{5}$  of a millimeter; that of No. 1 could well be just short of that. The broad flat handle serves to indicate the direction of the other end of the sound when one chooses to give a certain bend or curve to the shaft. The two smaller sounds are introduced without previous dilatation of the punctum.

I have found these sounds a real help in certain cases where I had become discouraged with the older kinds, and I trust my colleagues may adopt them with benefit. "Every little helps," and we do need help in our efforts to relieve lacrymal troubles—deplorable things that they are.

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MUSCULAR SPASM WITHOUT LOSS OF VITREOUS.—(Reported by Andrew B. Gloninger, M.D., in *Am. Medicine*.) The following case is unique from the fact that no loss of vitreous followed a condition of muscular spasm of the most violent nature:

After routine preparatory treatment for four days an iridectomy was done and the lens extracted. Three hours after operation I found patient in epileptiform convulsions, tetanoid in character, and in position of opisthotonos. He was entirely unconscious and would have thrown himself on the floor if the nurse had not been at the bedside; it was necessary to apply restraining straps to keep him in bed. A hypodermic of morphia had been given, and was followed by chloral and bromide via rectum, and chloroform by inhalation. The spasm lasted a half hour, and he remained in the opisthotonos position for fully two hours. There was a slight recurrence on the following morning. When consciousness was regained he gave a history of having had frequent attacks of epileptiform seizures since childhood. When the dressings were removed on the fourth day the wound was found sealed.



A CONTRIBUTION TO OUR KNOWLEDGE OF  
CORTICAL BLINDNESS.—TWO CASES  
OF BILATERAL HOMONYMOUS  
HEMIANOPSIA.\*

By DR. C. BARCK,

ST. LOUIS.

SINCE the first communication by Hitzig, in 1875, on a centre of vision in the posterior part of the cerebrum, this question has been zealously studied by comparative anatomists, physiologists, pathologists and oculists. To their combined efforts we owe it that the question in the main can now be considered as solved, whilst on some points there is still considerable controversy. The primary optic centers (nuclear centers) are:

1. The external geniculate bodies.
2. The pulvinar.
3. The anterior quadrigeminal bodies.

In the first one of these about 80 per cent. of the fibers of the optic nerve end, and therefore it must be regarded as the most important nucleus. The corpora quadrigemina are entered by the fibres for the pupillary reflex only; at least this is the generally adopted opinion, based upon experiments as well as pathological findings.

From the primary centers the fibres pass caudad under the name of optic radiation and reach the convolutions of the occipital lobe. The exact extent of the occipital cortex, which must be destroyed in order to cause complete hemianopsia, is not yet fully known. According to Munk, in the ape the entire occipital lobe up to the fissura occipito-parietalis is the center of vision. In man the same conclusion seems to be justified, as in different instances different parts of the occipital lobe have been found affected; but invariably the convolutions around the calcarine fissure were implicated, and according to Henschen's analysis this is the most important part of the visual area. The question which is not yet solved, and no doubt a very interesting one, is the central area corresponding to the macula lutea. The opinion of Munk, that in the ape the macula lutea is represented in the

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\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.

convolutions of the opposite occipital lobe, which are turned towards the sulcus longitudinalis, can not be accepted for the human brain. The clinical experiences speak irrevocably against it. They are:

1. That in unilateral hemianopsia the central vision is always preserved, no matter if the hemianopsia is right or left-sided.

2. That also in bi-lateral hemianopsia, due to succeeding lesions in both cortical centers, a small area around the point of fixation is preserved, with sometimes remarkably good central vision.

Of such cases of double-sided hemianopsia there have been reported in literature up to 1896 27 instances, which were collected by Kastermann (*Monatschrift für Psychiatrie und*

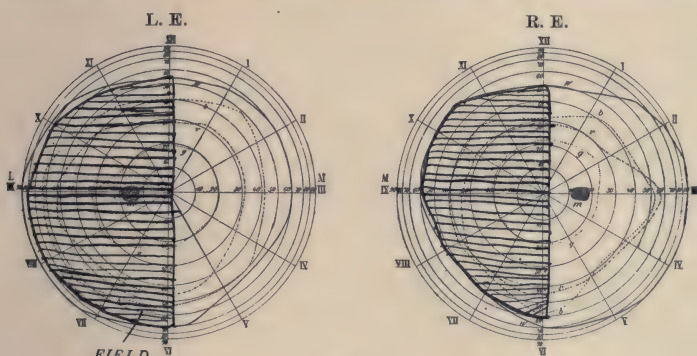


FIG. 1.

*Neurologie*, November, 1897.) Since about half a dozen more were published. I have seen the following two in my practice:

CASE I.—H. R., 59 years old; was first seen in September, 1889. A few days prior to his consultation he awoke with a severe headache and had more or less pain in the head ever since. Furthermore, he noticed some disturbance of vision. No alteration of sensorium, no paralysis or paresis.

The examination of the eyes revealed nothing abnormal objectively; fundi normal. Subjectively there was a typical complete, right homonymous hemianopsia. The boundary between the blind and seeing portions of the fields was running perpendicular about  $1\frac{1}{2}^{\circ}$  to the right of the center. Outlines of the remaining half of the field normal. (See Fig. 1.)

I diagnosed an affection of the left occipital lobe, probably due to thrombosis of the arteria cerebri posterior. I saw the case a few times shortly hereafter, and then once nearly a year afterwards. The field of vision remained the same. The central vision, which was at the first examination  $\frac{6}{18}$  in the right and  $\frac{6}{24}$  in the left eye, had improved to nearly  $\frac{6}{12}$  in each. He could read large type. The patient was brought to me again in March, 1894. He was nearly blind and had to be guided. Fundi normal. The fields were reduced to a small area around the point of fixation, about  $2\frac{1}{2}^{\circ}$  wide and  $\frac{3}{4}^{\circ}$  high. (See Fig. 2.) I found the central vision better than I expected— $\frac{6}{50}$  and  $\frac{6}{60}$  respectively. But he was not able to orientate himself, either on the street or even in his own room. He had lost the memory for places. This want of

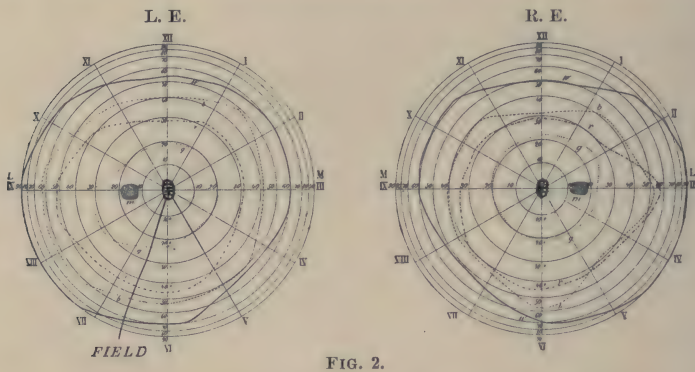


FIG. 2.

orientation and memory for places in spite of the persisting central vision is one of the symptoms of Munk's so-called "Seelen-blindheit," mental blindness, and is in all probability due to an interruption of the visual associate fibres between the cortex of the occipital lobe and the other centers of the cerebrum, center of speech, etc. The diagnosis could only be that of destruction of the right occipital lobe, including the mentioned tracts.

Also this time there were no complications, the mental functions not considerably affected, so that the clinical picture was quite a clear and precise one. I saw the gentlemen at intervals about three or four times afterwards. The field of vision did not change materially, whilst the central vision improved considerably. At the last visit, in October, 1896, he



was able to read large type. The color perception was impaired, but not altogether lost. His main complaint was still his difficulty in orientation. He died a few months afterwards, and unhappily I was not able to secure a post-mortem.

CASE II.—Wm. B., age 57; was first seen on the 21st of June, 1898. The history which could be obtained was not very clear. He had a stroke of apoplexy about three-quarters of a year previously, which caused a nearly complete paralysis of the left arm and leg. At the same time his vision became affected in a manner which he could not describe any more closely. The eyes were not examined at that time; for the palsy he was under treatment of his family physician. This improved slowly and at the same ratio as his sight, till a week ago. Since then he complained of headaches and noticed a

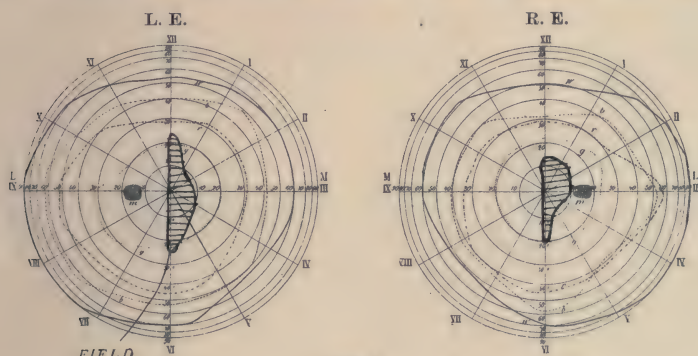


FIG. 3.

considerable decline of vision, which prompted a consultation.

I found the external appearance of the eyes and the fundi normal. V. R. =  $\frac{1}{60}$ , V. S. = fingers at 1 meter. The visual fields showed a complete left and a partial right hemianopsia. The boundary line to the left was running perpendicular about  $1^\circ$  to the left of the point of fixation. In the right half there was an area left which extended  $10^\circ$  to  $15^\circ$  horizontally at the widest part and  $35^\circ$  to  $40^\circ$  vertically. Fig. 3 represents more closely. The color perception was good. Besides the paresis on the left arm and leg there was a weakness of memory and generally a slow cerebration. Orientation was not materially affected.

I arrived at the diagnosis of bilateral homonymous hemianopsia; that at the time of the apoplexy the right occipital lobe was implicated, causing a typical and complete left

hemianopsia, and that shortly before his visit the left occipital lobe became affected, causing an incomplete right hemianopsia.

The patient improved slowly in every regard. The next time I saw him was on the 17th of November, 1898. The central vision had increased to  $\frac{6}{30}$  in the right and  $\frac{6}{24}$  in the left eye. He was able to read Snellen VII. with the proper correction (+ 4.0). The left half of the field unaltered, the seeing area of the right increased (See Fig. 4.)

He visited afterwards some sanatoria, and I did not see him till February, 1900. His general condition had continued to improve, and so had the sight. It was  $\frac{6}{10}$  in each eye; could read Sn. III. and even II. with difficulty. The field of the right half was again enlarged, that of the left remain-

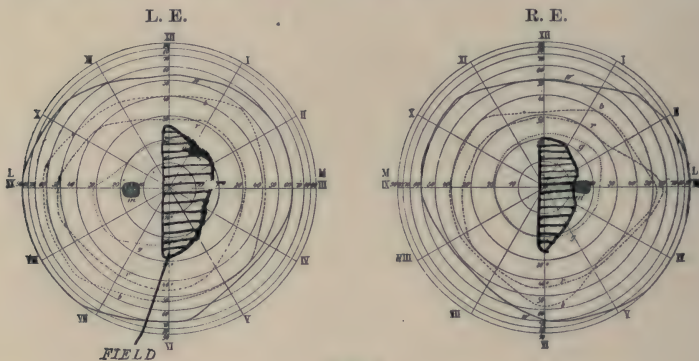


FIG. 4.

ing blind. At his last visit, end of 1900, the findings were the same. The conclusion we must arrive at is that the lesion of the right occipital lobe is irreparable, whilst that of the left was of a milder character, amenable to improvement.

Of the mentioned number of reported cases of bilateral hemianopsia, we possess five post-mortem examinations. Of these in two (of Schmidt-Rimpler and Peters) symptoms and the lesions found were so complicated and manifold that they are hardly available for the solution of the question which interests us. Only the remaining three presented an uncomplicated and clear picture, and are therefore of high value.

As some of these original communications are not easily accessible I take the liberty to quote them briefly:

1. Case of Forster and Sachs (clinical picture in *Arch.*

*für Ophthalmology*, Vol. 36, 1890. Post-mortem in *Arbeiten aus der Psychiatrischen Klinik in Breslau*, 1895.) Man of 44. In November, 1884, sudden and complete right hemianopsia. Vision  $\frac{1}{3}$ ; rose nearly to the norm within the next month, so that the patient could resume his occupation. In August, 1899, left hemianopsia developed within a few days. Only a small central part of the field remained, extending  $1^\circ$  to the right,  $3^\circ$  to the left,  $\frac{1}{2}^\circ$  upward and  $2\frac{1}{2}^\circ$  downward from the point of fixation. Central vision at first  $\frac{1}{3}$ , rose afterwards to  $\frac{1}{2}$ . Color perception entirely lost. Orientation also entirely lost, whilst patient was able to read and write. Exitus in 1893.

The post-mortem showed in both hemispheres, quite symmetrically, a large defect on the mesial surface of each occip-

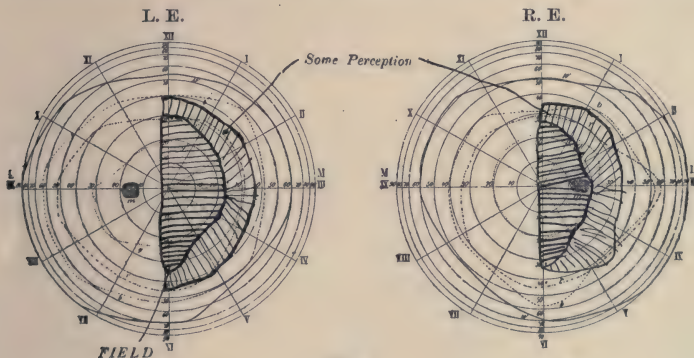


FIG. 5.

ital lobe. It implicated also a large portion of the convex surface. The microscopical examination revealed that of every occipital lobe all the medullary layers mesially and below the ventricle were destroyed. Only a small anterior particle of the cuneus and the hindermost portion of the fissura calcarina were apparently left intact.

2. Case of Kaestermann (*loco citato*), 1896. First right hemianopsia. Three years afterwards left hemianopsia, with the exception of a peripheral zone in left half of field. Color perception lost; want of orientation; mental blindness.

Post-mortem showed both occipital lobes destroyed by softening. Only in the area of the fissura calcarina there were two symmetrically located places, at the floor of each fissura close to the edge of the occipital lobes, which had remained intact.



3. Case of Laqueur (*Bericht der Opthal. Gesel.*, Heidelberg, 1898). Patient, 62 years old; was suffering since 14 years from chronic nephritis and arteriosclerosis. On June 15, 1897, accompanied by severe headache, a complete hemianopsia developed. On 29th of July he became suddenly entirely blind. Examination by Prof. L. two months after the last attack. V.R. =  $\frac{2}{5}$ , V.L. =  $\frac{5}{9}$ . The field of vision measures  $1\frac{1}{2}^\circ$  in the horizontal and  $2-2\frac{1}{2}^\circ$  in the vertical direction. Orientation and sense of locality gone. Within the next year no change of field, but improvement of central vision, so that he could finally read Yaeger No. 1. Exitus on the 6th July, 1898.

Post-mortem by Recklinghausen. The basal blood vessels of the brain show atheromatous degeneration. On the left hemisphere there is a place in the second branch of the arteria cerebri posterior  $\frac{4}{5}$  mm. long where the blood vessel does not collapse, and does not contain blood. Introduction of probes from both sides proves that here the lumen is firmly closed to the extent of 10 mm. The continuations of the obliterated artery are open and contain blood. On the basis of the right hemisphere, in spite of careful searching, no obliteration of the artery could be detected.

The most prominent microscopical changes of the cerebrum were found on the mesial and lower surface of the two hemispheres. In the left hemisphere the entire cuneus, the gyrus lingualis and gyrus fusiformis were totally sunken and softened. Forward the softening reaches to the branching of the art. prof. cerebri. The two inner convolutions of the lower surface are entirely destroyed.

In the right hemisphere the cuneus is softened, but not fully destroyed. A considerable portion of its upper convolution against the convexity is left intact. Downward the softening extends into the posterior portion of the gyrus lingualis up to  $\frac{1}{2}$  cm. from the edge of the occipital lobe. Forward it extends along the fissura calcarina also to the branching of the art. prof. cerebri.

All the other parts of the brain were found normal.

Prior to our knowledge of bi-lateral hemianopsia (commencing in 1890) the explanation for the preservation of central vision in unilateral hemianopsia was that the macula lutea region was provided for by both occipital lobes, and

that after destruction of one the other assumed the function. The main supporters of this theory were Gowers, Knies and Wilbrand. It is no doubt insufficient to explain the remaining central vision in bilateral hemianopsia.

Forster drew from the findings in his case the conclusion that the macula lutea was represented in the convolutions around the posterior portion of the fissura calcarina. Kaestermann's case would support this opinion. Henschen, on the other side, arrives at the opposite conclusion, that the convolutions around the anterior portion of the fissura calcarina represent the macula. Laqueur's case would speak for this opinion.

Evidently no conclusion can be drawn from a few cases, and the solution of this problem must be left to the future. Monak (on brain diseases in Nothnagel), after a careful revision of all the known cases, ventures to express the following idea:

1. That the macula is especially richly represented in the external geniculate bodies.
2. That it is represented at no special portion, but by the entire cortex of the occipital lobe.

#### DISCUSSION.

DR. W. O. STILLSON, Indianapolis.—I will not take much time in the discussion of this paper, because it would take a whole afternoon to do it justice; but I commend Dr. Barek and thank him for the paper, which was very interesting to me and to every one interested in ophthalmology. It was worth a trip here to hear this paper. I have had a good deal of trouble in locating these lesions, and the doctor's paper has made it plain. This is of interest to the neurologist as well as the ophthalmologist. I thank him greatly.

DR. W. L. DAYTON, Lincoln, Neb.—I would also thank Dr. Barek for this paper, and I hope we may see it in print early that we may digest it carefully. I am very much interested, inasmuch as I have a case of a distinguished gentleman, who has been colonel of the regiment which Bryan raised; he has been exposed to the climate of Colombo. He is a man of wonderful physique. When he was first attacked I think he was in bed suffering from an attack of catarrhal fever; there was homonymous hemianopsia.

HYALINE DEGENERATION OF THE CORNEA,  
WITH REPORT OF THREE CASES.\*

BY OSCAR DODD, M.D.,

CHICAGO,

Surgeon (Eye Department) Illinois Charitable Eye and Ear Infirmary; Oculist and  
Aurist at the Augustana and St. Joseph's Hospitals.

THE hyaline is said to be the most common form of degeneration of the cornea, being one of the products of a transformation of the albuminoids due to defective nutrition. It may affect the epithelium alone or the substantia propria of the cornea as well. The degeneration is accompanied by an infiltration of fine dots, granules or larger globules of a highly refracting material, differing from amyloid or colloid in their reaction to certain stains.

As examples of the clinical conditions in which it occurs, arcus senilis is the most common form affecting the corneal tissue proper. The epithelium may be affected alone, as in bullous and filamentous keratitis, where the changes take place rapidly and the degenerated tissue is exfoliated. A much more chronic condition is that known as "Band-Shaped Keratitis," "Transverse Films of the Cornea," and by various other names, where the degeneration takes place both in the epithelium and the deeper tissues, and is followed by a deposit of lime salts.

The three cases which I shall report belong to this chronic form but differ clinically very much from most of the cases reported. The first case was one with a marked hyperplasia of the epithelium, probably associated with a hyaline deposit.

Mr. P., aged 65 years, came to my office in October, 1898. He was a master mechanic of one of the large railroads, and his work required considerable application as well as exposure. He had noticed a small growth on his right eye for ten or fifteen years, probably a pinguecula. In December, 1895, his eye began to give trouble, and in April, 1896, he had a pterygium removed by the local physician. In June, 1896, he consulted the late Dr. Tilley, who operated and later cauterized it with medicines several different times at intervals of some weeks apart. When I first saw him the eye had gone

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\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.



some time without treatment, and recently it had become so irritable he could not use the other eye for his work.

The palpebral conjunctiva was practically normal. The eyeball was very much congested, a great many vessels running up to the cornea. On the cornea were two thick whitish masses, one on the nasal, the other on the temporal side, covering about two-fifths of the whole surface. Between the masses and above and below them the cornea was opaque and vascular, but not much elevated. The surface of the masses was rough and warty in appearance and not as vascular as the remainder of the cornea. His vision in that eye was reduced to shadows. The other eye was normal.

I operated at the hospital under cocaine anæsthesia, scraping off all the opaque material and then cauterizing the roughened places with the galvano-cautery. I found the proliferation was entirely epithelial, removing easily from Bowman's membrane and not affecting the substantia propria. The lumps were rather hard and came off in large pieces. Unfortunately the nurse destroyed the specimens, so I could not examine them microscopically.

The surface healed readily, leaving the epithelium somewhat irregular, with a slight, diffuse opacity. The eye became quiet and the vascularity disappeared. Two years later, when I examined him, I found the eye normal in appearance, except a slight opacity and irregularity of the surface of the cornea. The vision in that eye was  $\frac{6}{22}$ , with a + 2.D. sph.

A point worthy of notice in this case is the etiology. It occurred after the removal of a pterygium, and its growth was probably furthered by the irritating applications made to it. At a recent meeting of the Chicago Ophthalmological Society Dr. Wilder presented a case having a similar history and almost like it in appearance. There had been a pterygium removed a few months before, following which the growth made its appearance. He was able to improve the conditions by removing it, so the vision increased from the perception of shadows to  $\frac{20}{100}$ . Dr. Payne of San Francisco reports a case similar to this in a man aged 33, who had worked in a smelter where he had been exposed to the dust and irritating fumes. His eye trouble had existed twelve years. He had a diffuse epithelial deposit covering almost the entire cornea, but

thickest near the center, where it appeared very uneven, in some places lumpy. Around the margin it appeared flat and almost transparent.

The second case, Mrs. J. M., aged 39, came to my office in October, 1900, with the following history: Her eye trouble began when a child of two years, with a severe inflammation lasting several months. Since that time at intervals she had had attacks of inflammation of the eyes, lasting one or two days and then subsiding. She was able to do her school work and later the duties of the house, as sewing, etc., although with difficulty at times, until about six months before coming to me, when she became unable to read. Her general health had always been good, and she appeared strong and healthy with the exception of her eyes.

She had a great deal of photophobia, and the light caused her severe pain. The lids were heavy and thickened, and she was unable to open them well. The ptosis was probably caused by her having kept them partially closed so long. The conjunctiva was about normal. Some ciliary congestion was present, and on each cornea were several translucent, whitish spots considerably raised above the surface. They were about the size of a pin-head, or a little larger, the left cornea having the greater number. The spots were superficial and probably located on the site of former ulcerations. Most of the remainder of the cornea was transparent, but at the upper part of each cornea was a leucoma—more dense on the left eye. She could count fingers at ten feet with either eye, and her vision could not be improved either by glasses or dilation of the pupils.

I operated the next day, under cocaine anesthesia, on her right eye. Most of the spots separated easily from the cornea, not extending deeper than Bowman's membrane. One spot near the scleral margin extended beyond the limits of Bowman's membrane into the deeper layers, leaving a rough surface after removal. Healing took place readily, the epithelium forming over the denuded spots, with no marked infiltration into the deeper structures, except at the spot near the margin. What infiltration there was gradually disappeared until only a slight opacity marked the sites of the former spots.

Two weeks later I scraped the opacities from the left eye, but found it more difficult than the right. Several of them were near the corneal margin, so they did not separate well from the underlying tissue. Healing took place readily, as in the other eye, but more opacity remained. Two weeks later, when she returned home, her vision was  $\frac{6}{15}$  in her right eye and  $\frac{6}{22}$  in the left.

She returned the latter part of January, this year, with her eyes greatly improved. The photophobia and lacrymation were largely gone, but the eyes would become congested on handling. There was some opacity where the spots formerly were, and some irregularity of the corneal epithelium. The eyelids were heavy, and the ptosis could not be overcome even by extreme effort. Her vision was  $\frac{6}{12}$  in the right eye, with a + 3.D. sph., and in the left  $\frac{6}{15}$ , with a + 2.D. sph.

In this case we probably have a hyaline infiltration underneath the hypertrophied epithelium at the sites of the old ulcerations. That the condition is rare would be shown by the fact that when I presented the case before the Chicago Ophthalmological Society no one had seen a similar condition.

Nuel has described the condition and gives a cut of the microscopical appearance in his article on Diseases of the Cornea in the Norris and Oliver System of Diseases of the Eye. In that specimen the hyaline infiltration is under the epithelium and is infiltrated with calcareous material.

In the following case the degeneration affected all the layers of the cornea. The calcareous precipitate in the superficial part was probably a later development.

Miss O. S., aged 19, came to my office in July, 1900, to consult me regarding an operation to improve her sight. She gave the following history: Her eye trouble dated from a severe inflammation when she was 7 years of age. Her eyes were never strong after that, but she was able to do her school work until six years later, when she had an inflammation lasting several months. This left the eyes in bad condition and she would have frequent attacks of inflammation lasting one or two days. Her general health had been good, but her color was pale and waxy, and she had very little endurance.

There was a great deal of irritation of the eyes and photo-



phobia. The palpebral conjunctiva was about normal, but there was some circum-corneal congestion and lacrymation. The cornea was full of fine, whitish dots, some of them so small they could only be seen with a strong lens. Apparently the whole thickness of the cornea was involved, but they were most dense in a circle about the pupil in each eye. At this point they were larger and more superficial and gave a slightly uneven appearance to the surface of the epithelium, which was smooth over the remainder of the cornea. The larger spots looked like deposits of some foreign substance, as lead or chalk. Her vision was  $\frac{6}{30}$  in the right eye and  $\frac{6}{45}$  in the left. Under atropia it improved to  $\frac{6}{30}$  in each eye. The fundi were normal as far as could be seen.

Hearing that she had consulted Dr. Westcott a few years before, I saw her in consultation with him, and he gave me the following notes from his record: He saw her in May, 1897, when she complained of the eyes watering and being sticky in the morning, and of headache over the eyes. The conjunctiva was roughened and the cornea was dotted with very fine opacities, apparently superficial. The vision was  $\frac{20}{50}$  in each eye, and under atropia with a correcting glass it was slightly improved. He said the spots in the cornea were much larger and more numerous than when he first saw her.

I scraped the central opacities from the left cornea with a curette as thoroughly as possible. They came off in chunks like grains of sand, leaving holes quite deep in the cornea. I was able to remove most of the larger spots, but some were so firmly imbedded in Bowman's membrane or below it that I did not think it best to dig so deep for them. The epithelium re-formed surprisingly well, leaving the surface quite smooth but with slight opacity where the spots were removed. Eight days after the operation her vision was  $\frac{6}{15}$  and with a + 75 D. cyl. =  $\frac{6}{12}$ .

About a month later I operated on the other eye and obtained an equally good result, so that a few days after her vision was  $\frac{6}{12}$  with each eye. The larger white spots which formed the ring about the pupil were mostly removed, but some of the deeper ones remained.

Grönouw reported two cases that were similar to this in their clinical appearance, both eyes being affected. He had

watched one case for ten, the other for eleven years, with no marked change except the gradual increase in the size and number of the spots. In one case—a man, aged 50—the margin of the cornea was quite clear, while the center was filled with a great number of gray opacities. They were irregularly round; part of them were separate and part in groups. The larger ones were the size of a poppy seed, with smaller ones between, and some fine stripes and lines between the opacities. They were in all layers down to Descemet's membrane. There was no inflammation and very little circumcorneal congestion. His vision decreased from  $\frac{2}{5}$  in 1889 to  $\frac{3}{60}$  in 1897. In the second case—a girl, aged 17—the opacities were in the central part of the cornea and were more dense than in the other case. The epithelium was raised and uneven in the center but not in the other parts of the cornea. The small spots extended through to the deeper layers. He removed some of the cornea for microscopical examination, as I shall mention when discussing the pathology.

As to the cause of this trouble we know very little. That in the first case the pterygium and the subsequent irritating treatments were a factor there can be no doubt. In the second case we have the trouble beginning as a probable sequel of a corneal ulceration, with the irritation of subsequent recurring inflammations. I have seen two cases in consultation with other oculists, where a previous ulceration was given as the cause of a hyperplasia at one point, similar in appearance to the spots in this case—only larger. It is not so easy to understand the cause of the third case. Any inflammation severe enough to interfere with the nutrition of the cornea and produce the changes in the corneal cells should have left some other mark. Of the two cases, similar to this, reported by Grönouw, one had had a mild inflammation of the eyes prior to the development of the trouble, but the other had never had previous trouble.

Nettleship considers cardiac and kidney trouble, as well as the gouty diathesis, as probable causes of the form of degeneration known as “Band-Shaped Keratitis,” while Galezowski found phosphaturia present in three cases of calcareous infiltration of the cornea, and considered it the cause.

In my statement of the pathology I shall have to depend

more upon the reports of the cases quoted than upon my now examinations. I saved the specimens from the second case, but they were very small, and so hard that it was impossible to make good sections. They appeared to be a hyperplasia of the epithelium which had undergone some change, with probable calcareous infiltration, but the sections were not thin enough to make the differential stain. The methods of staining for the differentiation of hyaline have been so varied that it is hard to reconcile their results. According to the latest authorities on pathological technique, the old methods of staining were unreliable and frequently gave contrary results. Whether the new differential stains will cause us to modify the statements made regarding hyaline degeneration remains to be proved. For instance, Fuchs found that a hyaline degeneration was one of the principal changes in the pinguicula. He arrived at quite different results, however, than v. Recklinghausen in his work on that subject.

The pathological conditions in my cases were very probably similar to those occurring in band-shaped keratitis, and described by Treacher Collins as follows: A formation of laminated fibrous tissue is present at the anterior part of the cornea between the epithelium and the normal situation of Bowman's membrane, which in most cases contains a granular material, either collected in masses or more loosely distributed in the epithelium. No blood vessels are found in this new fibrous tissue. Granular hyaline or entirely granular bands are found at the posterior part of the new tissue, in some cases forming a sharp line between it and the substantia propria. Where the hyaline granular bands exist Bowman's membrane is never found in contact with the epithelium. These bands may be found directly continuous with Bowman's membrane, so there can be no doubt that they are portions of it which have become granular and divided up. Degenerative changes are found in the epithelium in the region of the film. Calcareous material was found in all the cases examined.

Grönouw found in the case he examined, which was like the last one I reported in clinical appearance, that there were round masses and stripes of a transparent homogeneous substance lying under the epithelium and in the substantia propria. The spots were colored intensely red by eosin, stained



a light brown with iodine, and did not change on the addition of acids corresponding to the tests for v. Recklinghausen's hyaline. He thought that the smallest opacities seen in the cornea were caused by the changed corneal cells, as they were so swollen that the nuclei would not stain. It is probable that these were the beginning of changes from which the hyaline substance is developed. Fuchs, in his article on Superficial Punctate Keratitis, also takes the view that the fine spots seen in the cornea are the swollen corneal cells.

Following the hyaline degeneration we frequently have a deposit of lime salts. This is particularly noticeable in band-shaped keratitis, occurring as it frequently does in old, degenerated eyes, following injury or glaucoma.

As to treatment, nothing is of benefit except removal of the degenerated tissue when it is superficial. The thorough removal of the abnormal tissue has been followed by the formation of normal epithelium in all the cases I have seen, with the attending of the irritation and congestion. In those cases affecting the deeper layers of the cornea, with calcareous infiltration near the surface, some benefit may be obtained by scraping out the most superficial deposits. That they will return later is very probable.

Since writing this paper I have had a case similar to those reported, but developing more rapidly. About six months ago the woman had an ulceration of the cornea, which started at the margin and extended quite a distance. Following the ulceration the eye remained irritable and the opacity grew more dense. On the temporal side of the cornea, extending nearly to the pupil, was an opacity, raised slightly above the surface, part of which was translucent and quite vascular, and part of it being infiltrated with a white material, probably calcareous. There was some circum-corneal congestion and the eye was quite irritable. It will probably be necessary to scrape the surface thoroughly before the eye will become quiet and not give trouble.

The preceding cases show that we may have, in otherwise healthy eyes, a hypertrophy of the corneal epithelium, associated with a degeneration, simulating in its appearance a new growth, and that this hypertrophy may be removed, leaving a serviceable eye.

## REFERENCES.

- Fuchs—Keratitis Punctata Superficialis: Wiener klin. Wochenschrift, N. 44.  
 Grönouw—Knötchenförmige Hornhauttrübungen: Graefe's Archiv., Bd. 46.  
 Grönouw—Knötchenförmige Hornhauttrübungen: Archiv. f. Augenheilkunde, Bd. XXI, s281.  
 Payne—Keratitis Epithelialis Hypertrophica: Annals of Ophthalm., 1900.  
 Galezowski—Assoc. franc. pour l'avance de sci., 1878.  
 Nettleship—Band-Shaped Keratitis: Trans. Ophth. Soc. of the U. K., 1886.  
 Collins—Erasmus Wilson Lectures: The Lancet, Feb. 17 and 24, 1900.  
 Fuchs—Zur Anatomie des Pinguecula: Graefe's Archiv., Bd. XXXVII.  
 Fuchs—Graefe's Archiv., Bd. XXXVIII.

## DISCUSSION.

DR. AYRES, Cincinnati.—I have been very much interested in this subject. These cases constitute a group distinct from the ordinary corneal diseases. I have had some cases where I scraped the cornea, but whether there was hyaline degeneration or not I am unable to say. The first case I will mention is that of a lady who came to me last October. In August she had an inflammation from which she apparently recovered and then relapsed, and when I saw her there was in the center of this old scar a depression and one of those necrotic processes which are slow to heal. The eye was sensitive and painful. These are the cases where curetting and scraping are followed by very excellent results. I curetted the cornea and removed the necrotic tissue. It did not appear, however, to be calcareous, but the removal of this tissue was promptly followed by a restoration of the epithelium and the surface healed over. I had last year an interesting case of injury to the cornea. The gentleman was thrown from his carriage and two or three days after suffered from pain in the left eye. Examining it, first I could see no wound, but the eye was very painful. I ordered cocaine locally. The next day the epithelium over the center of the cornea was elevated. On the following day I tore off this epithelium around to the healthy epithelium and kept the eye bandaged, and in a short time the epithelium was restored. That probably was traumatic, the trouble arising from the fall from the carriage. The next is the case of a young man in the city. A few

years ago he came in with a violent inflammation. There were greyish spots in the epithelium of the cornea. In a short time these spots enlarged and coalesced, the epithelium came loose, first in one eye and then the other, and was completely shed in both eyes. The restoration of the same was very rapid. I think it was only a few days until the eyes were in good condition. Allied to this is the bullous keratitis found in old, glaucomatous eyes which have been blind for a long time. I had a case of a man 75 years of age who had been blind five years, and for several months he had had a violent pain in the left eye. I first removed the blebs and then applied a 40 per cent. solution of silver nitrate over the cornea, and up to five weeks ago there was no return of the pain nor had the blebs reformed.

DR. ADOLF ALT, St. Louis.—I have had occasion to examine quite a number of such cases, and a drawing of one can be found in my book on the histology of the eye. I have also a specimen, sent me by Professor E. Fuchs of Vienna, in which there is a hyaline degeneration which affects the anterior layers of the cornea. The epithelium is not normal, but it does not show the hyaline degeneration. Lime deposits, which stain very much like hyaline substance, can easily be recognized by the application of an acid. The doctor is to be congratulated in view of the results of his treatment.

DR. PHILLIPS, Chicago.—One of the cases Dr. Dodd reports I had the pleasure of seeing, and I can state that the appearance of the diseased area was that seen in Arcus Senilis, except its occurrence in spots and as distinct elevations on the surface. I also saw a second similar case under the care of Dr. Wilder, and presented to the same society. A microscope examination was made of the tissue removed in this case, and it was found, I believe, to be hyaline degeneration. I have not seen Dr. Wilder's statement in regard to the final examination. The cases were similar, with the exception that in Dr. Wilder's case a larger single area of the cornea was involved. From my experience I can say that Dr. Dodd's case had none of the appearances of keratitis filamentosa.

DR. DODD, Chicago.—I am very much obliged to the gentlemen for discussing the paper, because it is rather out of the



ordinary, and I was very much at sea when I first saw these cases as to where to class them. As regards its being similar to fascicular keratitis, I do not think it is. I think a number of these conditions aside from what I have mentioned should be classed in the same group—the clinical appearance differing a little, but the general conditions being alike.

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#### BOOKS AND PAMPHLETS.

- “Merck’s 1901 Manual.”
- “Report of the Nederlandsch Gasthuis for 1900.”
- “Report of St. Louis Mullanphy Hospital for 1900.”
- “The Insanity of Puberty,” by F. P. Norbury, M.D.
- “The Functional Test of Hearing,” by D. L. Ballenger, M.D.
- “Evolution of the American Medical College,” by A. R. Baker, M.D.
- “Magnetic Foreign Bodies in the Eye,” by E. V. Appleby, M.D.
- “Surgical Treatment of Palatal Defects,” by T. W. Brophy, M.D.
- “The Advantages of Railway Surgery,” by H. C. Fairbrother, M.D.
- “Eleventh Report of the New Orleans Eye, Ear, Nose and Throat Hospital.”
- “The Amount of Myopia Corrected by Removal of the Crystalline Lens,” by E. Jackson, M.D.
- “Accidents Attending Adenoid Operations,” by C. R. Holmes, M.D., and H. S. Garlick, M.D.
- “Principles of Asepsis Applied to Operative and Other Wounds of the Eye,” by E. Jackson, M.D.
- “Studies in the Physiology and Psychology of Visual Sensations and Perceptions,” by F. W. Ellis.
- “Katalog der Buecher-Sammlung,” von J. Hirschberg, M.D. (Catalogue of the Library of Prof. J. Hirschberg).

# MEDICAL SOCIETIES.

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## SIXTY-NINTH MEETING OF THE BRITISH MEDICAL ASSOCIATION, HELD IN CHELTENHAM.\*

### SECTION OF OPHTHALMOLOGY.

The President, Mr. W. H. H. Jessop, gave a presidential address on Points in the Pathology and Prognosis of Glioma. Mr. Priestley Smith opened the discussion on Myopia, and drew conclusions from 100 cases of all degrees of the affection. He discussed the condition under the heads of the age of the patient, the degree of myopia present, the state of the choroid and retina, the constitutional condition of the patient, evidence of heredity, occupation of the patient. Dr. A. S. Percival showed a diagram of the orbit, and thought the oblique muscles were very powerful in the production of myopia. Mr. Henry Power laid stress on the hygienic surroundings of the patient and the pernicious habit of allowing children to work before breakfast and on insufficient food. Dr. Dariér (Paris) referred to massage as a treatment for myopia. Mr. A. H. Thompson thought the chart shown by Mr. Priestley Smith most useful, and considered it safe for myopes of a low degree to use their accommodation. Mr. Eales thought the power of accommodation of the patient was a great index as to the condition present, and also that with exophoria accompanying it prisms did much good. Dr. Barr did not consider reading in a carriage very likely to do harm, but he especially warned myopes against reading in bad light. Dr. Maddox held that fatigue of the eyes should be avoided whenever there was a tendency to myopia. After some remarks by Dr. Bronner, Dr. Batten discussed various general conditions as bearing on myopia, and also the appearance of the fundus in various stages of the disease. Dr. Tatham Thompson fully corrected his low cases of myopia. Surgeon-Major Herbert read a paper on Superficial Punctate

\*British Medical Journal.

Keratitis, in which the dots on the cornea were stained with fluoresceine. In these dots he found an encapsuled bacillus, which showed many signs of causing the disease, though most cultures had failed. Mr. Devereux Marshall thought the name "keratitis punctata" very confusing, and did not consider the proofs brought forward by Major Herbert very conclusive. Mr. Blair thought it resembled Fuchs' keratitis. Dr. Tatham Thompson described a case of symmetrical bullous keratitis in a man, aged 22. The bullæ arranged themselves all around the cornea, and were cured after four months of treatment, of which formol (1 to 5,000) appeared to do the most good. Dr. C. Blair reported a case of unusual form of keratitis associated with a skin eruption in a patient aged 18, who showed swellings around the cornea which were somewhat like what was seen in spring catarrh. At times exacerbations occurred, and these were associated with a papular eruption of the skin of the face. He considered it a part of a general condition. Mr. Devereux Marshall thought it very like a tuberculous cyclitis. Dr. Blair thought this possible, but stated that it had not altered much for four years. Dr. Percival read a paper on Periscopic Lenses, the errors of which had been worked out mathematically. The President, Dr. Maddox, and Dr. Tatham Thompson joined in the discussion.

#### SECOND DAY.

The work of this Section was begun by Mr. Blair, who showed a new portable refractometer. Mr. Roll then read a paper on the Hess Operation for Ptosis, which he had somewhat modified. He showed photographs of patients before and after the operation had been performed. Mr. J. R. Coulter showed some interesting fields and strongly advocated the testing of fields with black spots. Mr. Hartridge wished that all observers would state the size of the square used when taking fields. Mr. Henry Power read a paper on the Performance of Depression for the Cure of Cataract. He stated that he had many times seen it done in his early life, and had also performed the operation himself. He advocated it in some cases of old, feeble patients, in those who were deaf, and also in lunatics, idiots, etc. Mr. Jessop mentioned one successful case he had seen done abroad in a second eye after



the first had been lost from hæmorrhage, but stated that he had never done the operation, and asked if Mr. Power operated through the sclera or cornea. Mr. Richardson Cross had done it in one case of tremulous iris. Mr. Roll once did the operation accidentally when extracting the lens. He subsequently extracted it with good result. Mr. Tatham Thompson had done it once eighteen months ago with excellent results. Mr. Power, in reply, stated that he operated through the sclera. Mr. Vernon Cargill next read some notes on his ophthalmic experience in the Imperial Yeomanry Hospital in South Africa. He showed museum specimens and fragments of bullets which had destroyed or injured eyes. He described the most frequent injuries met with as the result of gunshot wounds, and also more rarely of shell wounds. A discussion on the Relation of Gonorrhœa to Diseases of the Eye, exclusively of Purulent Ophthalmia, was then opened by Mr. Lawford. He described some cases in which iritis and other lesions occurred after the disease. The frequency of these was more marked in males than females, but the statistics were very limited. The most common form was iridocyclitis, together with scleritis and episcleritis; the least common forms were retinitis and neuroretinitis, and even bilateral infection of the lacrimal gland. Mr. Hamilton described a case of gonorrhœal iritis in which there was no arthritic infection. Dr. Yeld had recently analyzed many cases of iritis, and had found that gonorrhœa was responsible for many. Dr. Darier had seen many cases associated with endometritis, which were rapidly cured when the uterine affection was treated. Mr. Henry Power thought that cases of gonorrhœal iritis must be excessively rare. Mr. Richardson Cross was always on the lookout for cases, and frequently found such. Colonel Drake-Brockman had in India seen cases of iritis associated with gonorrhœal ophthalmia. Mr. Sydney Stephenson had seen cases of arthritis in children associated with gonorrhœal ophthalmia. Mr. Devereux Marshall described the characteristic transparent exudation in the anterior chamber. Mr. Vernon Cargill drew attention to the numerous cases of rheumatic iritis in which there was a history of gonorrhœa. Mr. Hamilton read a paper on Hypopyon Ulcers of the Cornea, in which he advocated the

cutting of the vessels and local bleeding. The actual cautery he thought indispensable. Mr. Richard Williams frequently found the cautery inefficient, but made a vertical linear incision and let out the lymph. Mr. Tatham Thompson looked upon formalin as his sheet anchor, and subsequently used iodoform ointment. Mr. H. E. Jones had almost given up the cautery. Dr. Darier strongly advocated the careful use of fluorescine and the actual cautery. Dr. Barr agreed as to the great value of the cautery and fluorescine, but disapproved of dressings over the eye, and preferred the instillation of castor oil and iodoform. Dr. Ward Cousins showed an irrigator he had introduced for the cleansing of the conjunctival sac in cases of purulent ophthalmia. At the final meeting of this Section Mr. Edridge-Green read a paper on the Essentials of a Test for Color Blindness, adversely criticising the Holmgren test. He strongly advocated the use of names when testing colors. Mr. Devereux Marshall agreed that Holmgren's tests were fallacious. Mr. Gustavus Hartridge read a paper on the various preparations of silver in ophthalmic work, and gave the preference to protargol. Dr. Darier thought nitrate of silver very harmful in feeble children, and preferred constant applications of a drop of 5 per cent. protargol, and later on the nitrate of silver was useful. Mr. John A. Brown read a paper on the suprarenal gland in ophthalmology. Chloretone acted best as a preservative, but it was preferable fresh. He recommended it in hay fever and various other conditions, but he thought it very harmful in corneal ulceration. Dr. Darier read a paper on some of the latest discoveries in ophthalmic therapeutics. In glaucoma suprarenal extract diminished the tension and made the eye much less vascular. Acoine when injected subconjunctivally was a powerful anaesthetic, though it had no use when instilled only into the conjunctival sac. Dionine was useful with atropine in helping to dilate the pupil in iritis; it was also an antiseptic and analgesic and relieved the pain of acute glaucoma and iritis. Dr. Grainger thought that Jacques solution of suprarenal extract was far the best. Dionine was very useful for diagnostic purposes. Dr. Maddox agreed as to the value of suprarenal extract, especially in operations on the eye, making it avascular. Dr. Darier replied. Mr. Sydney Stephenson and Dr. George

Carpenter read a note on Tuberculosis of the Choroid. In miliary tubercle they usually found two or three spots, while in chronic tuberculosis the lesions might be multiple or single. Sometimes it might assume the form of an intraocular growth, and occasionally it might become quiescent. The President mentioned a case in which a large mass of tubercle of the choroid subsided under rest and treatment. Mr. A. S. Percival described a case he had seen. Mr. Dykes Bower suggested that some of the lesions depicted might have been of a congenital origin. Mr. Richardson Cross opened a discussion on the Varieties and Treatment of After-cataract. No method of operation would entirely prevent the formation of after-cataract. In ordinary cases a modified Bowman's needle sufficed, but the capsule should be cut and not torn. In other cases scissors should be used to cut the capsule, and as a last resort the capsule might be extracted. The President thought that a ground-down Graefe's knife was far better than a needle; Dr. Darier that great care should be taken in needling not to go deeply into the vitreous. Mr. Power described various methods he had used, but thought the less done to secondary cataract the better. Mr. Devereux Marshall thought needling a dangerous operation, but if the operation had to be done, the sooner the better. Remarks were also made by Mr. Dykes Bower, Mr. A. H. Thompson, Mr. Roll, and Mr. Cargill. Mr. Hartridge showed his capsulotomy needle. Mr. Richardson Cross replied, and stated that he always inserted his needle at the periphery when operating. Mr. H. E. Jones moved a resolution concerning the compensation of workmen after eye injuries, which was seconded by Mr. Henry Power.

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#### BOOK REVIEWS.

EINFUEHRUNG IN DIE AUGENHEILKUNDE. VON DR. J. HIRSCHBERG. (Introduction to Ophthalmology.) Second Half; First Part. With 113 Figures in the Text and a Colored Plate. [Leipzig. Georg Thieme, 1901.]

This part of the eminent ophthalmic author's text-book, like the first one, noticed by us several years ago, aside from



its wealth of information, is especially brilliant in its descriptions and the simplicity and perspicuity of its language. It describes the theory of the ophthalmoscope and its practical application, including photography of the fundus. The largest part of this volume is devoted to the examination of the cornea, iris, crystalline lens and vitreous body, and to the measuring of the refraction. Numerous excellent and original illustrations are interspersed in the text.

**PEMPHIGUS DES AYES (PEMPHIGUS OF THE EYE).** By DR. E. PERGENS. [Berlin, 1901. S. Karger.]

The author has in this monograph collected from literature 130 cases of this luckily rare affection of the eye and added two new observations of his own. From this material he deduces a very clear description of the symptomatology, bacteriological researches and rather ineffectual therapeutic efforts. It is an excellent monograph on this subject.

**STUDIES FROM THE ROYAL VICTORIA HOSPITAL, MONTREAL.**  
Vol. I, No. 1.

**THE PRIMARY TUMORS OF THE OPTIC NERVE: FIBROMATOSIS NERVI OPTICI.**

A review of the "intradural" tumors of the optic nerves so far published, to which the author adds two of his own observation. His contention is that all of these tumors are, under whatever other name they may have been described, an overgrowth of the connective tissue structures of the nerve. This statement the writer thinks is altogether too sweeping, and while an attempt to bring order into the chaos of descriptions is timely and praiseworthy, the author, it seems, is going too far in bringing all the different forms of intradural tumors of the optic nerve under the one head of fibromatosis.

**MANUAL OF THE DISEASES OF THE EYE, FOR STUDENTS AND GENERAL PRACTITIONERS.** By CHAS. H. MAY, M.D. Second Edition. [New York, 1901. William Wood & Co.]

It must be very gratifying to the author that already a second edition of this text-book is demanded. He has revised and enlarged the former edition and added new and valuable illustrations.

ALT.

## ABSTRACTS FROM MEDICAL LITERATURE.

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By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### VALIDOL IN SCOTOMA SCINTILLANS.

Neustaetter (*Die Ophthalmologische Klinik*, June 20, 1900) was very successful in the treatment of five cases of scintillating scotoma with validol in 20 drop doses. A few minutes after taking it the irregular lines became less conspicuous, then suddenly disappeared and did not return. After a little longer time the visual field was entirely clear. Subsequent attacks were promptly relieved with a single dose. In only one case was it necessary to repeat it. The author does not state whether he attributes any of the good results to the menthol in the drug, or not. He thinks it should be used in every case, as it not only removes the scotoma but also relieves headache. So far as yet known it is an entirely harmless drug.

### EXTIRPATION OF THE SUPERIOR CERVICAL GANGLION OF THE SYMPATHETIC IN THE TREATMENT OF GLAUCOMA.

Ziehe and Axenfeld (*Sympathicus-Resektion Beim Glaukom*, Halle, A. S., 1901), after an admirable discussion of this subject and a complete analysis of the literature and the cases reported up to date, come to the following conclusions, which, somewhat condensed, are here reproduced:

1. Extirpation of the sympathetic—that is, extirpation of the superior cervical ganglion, as well as resection of the sympathetic nerve—in the hands of competent surgeons is a comparatively safe procedure. Among seventy-four cases of glaucoma submitted to this operation there was only one fatal result. Detriment to the eye is up to this time not positively proved.

2. If the material at present available does not suffice to pass judgment upon the durability of this procedure, it still permits it to be said that a certain number of glaucomatous eyes can be improved for many months by such resection,

while in other cases a checking of the process seems to have been obtained. It is quite impossible to prophesy that extirpation of the sympathetic will be of advantage in each case, but it is not certainly proved that it will occasionally do harm. When the operation has been followed by a good result this in the majority of cases has remained, whether permanently or not cannot be stated. It is rare that a primary improvement gives place to a late relapse.

3. Referring to the different forms of glaucoma, the following may be stated: (a) In acute inflammatory glaucoma resection is to be rejected, except when iridectomy is declined, or when on the first eye the operation has resulted badly; that is to say, when, in spite of the iridectomy, the glaucoma continues or relapses. (b) In hemorrhagic glaucoma resection is a proper procedure. (c) In chronic inflammatory glaucoma and in simple glaucoma a number of good results have been observed. Resection is therefore worthy of recommendation as a supplement to iridectomy in progressive cases.

4. Extirpation of the sympathetic for non-iridectomized eyes is, in general terms, not suitable. Resection should not, even in chronic and simple glaucoma, supplant iridectomy. Iridectomy holds the first therapeutic place. Extirpation of the sympathetic without previous iridectomy appears permissible only when iridectomy or sclerotomy is refused, when iridectomy has resulted unfortunately in one eye, in hemorrhagic glaucoma, in those cases of simple glaucoma where a very great disturbance of vision already exists; and perhaps also in hydrophthalmos, although in this disease multiple sclerotomies are to be considered.

5. In absolute glaucoma extirpation of the sympathetic is indicated only when the blindness has existed for a short time, or when the disease is affecting the last eye. If complete blindness has existed several weeks, and severe pains are present, enucleation is indicated, and only when this is declined extirpation.

6. Inasmuch as after extirpation glaucoma continues in some cases, and, furthermore, as inflammatory attacks may appear after this operation, it is wise in the after-treatment to continue myotics.



7. Whether extirpation of the sympathetic can prevent glaucoma has not been safely established.

8. Anatomical examination of the excised ganglia shows changes which, while not characteristic of glaucoma, are worthy of further investigation.

9. The final conclusion is that in all cases in which our hitherto employed therapeutic measures are not effective, extirpation of the cervical sympathetic is a measure justifiable and worthy of employment, even if improvement is not certainly to be expected from the operation.—*Oph. Record*, June, 1901.

#### THE OPHTHALMOSCOPIC EXAMINATION FOR KIDNEY DISEASE.

Edward Jackson (*New York Med. Journal*, July 27) urges the importance of making an ophthalmoscopic examination in all cases of nephritis, stating that pathological conditions are found in 50 per cent. of the cases and distinct albuminuric retinitis in at least ten per cent.

#### TOBACCO AMBLYOPIA.

C. E. Finlay (*Archives of Ophthalmology*), during a residence of eight years in Havana, treated ninety-two cases of tobacco and alcohol amblyopia. Some improved under treatment and others did not. One acute case resulted in total blindness.

He cannot endorse the opinion of many that tobacco grown in Cuba is comparatively harmless, and that Cubans do not suffer from this form of amblyopia.

#### REMARKS ON THE USE OF PILOCARPINE IN THE TREATMENT OF INFLAMMATIONS OF THE INTERIOR OF THE EYE.

Howard F. Hansell (*Therapeutic Gazette*, Aug. 15), as the result of an extensive experience, is a firm believer in the efficacy of profuse sweating (produced by hot baths and hypodermic injections of pilocarpine mur.) in diseases of the sclera, choroid and retina. The patients that derive the most benefit from this treatment are those suffering from rheumatism and gout. In syphilis he finds it is a most valuable adjunct to the usual local and constitutional remedies.

His method is as follows:

"A convenient hour is chosen, usually 3 p.m., and the patient is put into a bath the temperature of which ranges between 106° and 110°; during the bath he drinks a cup of hot tea. After twenty minutes immersion he is put into bed and receives a hypodermic injection of  $\frac{1}{12}$  to  $\frac{1}{8}$  grain pilocarpine muriate. The sweating begins in a few minutes, and is encouraged by hot bottles and blankets for two hours or more. Should the sweating become slight or insignificant during these two hours, the patient is given a glass of ice water, when the glands of the skin take on renewed activity. At the termination of the sweating the wet blankets are removed, fresh bedclothing substituted, and the patient left quietly in bed until the next morning, when he is allowed to be up and dressed until time for the next bath. Should he complain of exhaustion following the first bath, a hypodermic injection of  $\frac{1}{20}$  grain strychnia is given one-half hour before the next bath. The diet should consist largely of fluids. Whatever local eye treatment the disease calls for is of course administered as indicated, and is not interfered with by the sweats."

#### TUBERCULOSIS OF THE CHOROID.

George Carpenter and Sydney Stephenson (*The Lancet*, July 20) give the result of their study of 49 cases. They group them clinically as follows: (1) Acute miliary tuberculosis and tuberculous meningitis; (2) chronic tuberculosis; and (3) obsolescent tuberculosis. The following conclusions are submitted: (1) Tubercle of the choroid may be met with in any form of tuberculosis. It is common in acute miliary tuberculosis and tuberculous meningitis (50 per cent. of the cases examined). The lesion was usually small, solitary, and limited to one eye. (3) It is far more common in chronic tuberculosis than is generally supposed, it being present in 9.24 per cent. of the cases examined. The lesion may be single or multiple. In very rare instances it attains great dimensions, and may perforate the eyeball. (4) It is present in a certain number of cases of quiescent tuberculosis, generally taking the form of a large, more or less pigmented area, situated in or about the center of the fundus.

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## ORIGINAL ARTICLES.

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### THE THERAPEUTIC VALUE OF ADRENALIN CHLORID.\*

By DUDLEY S. REYNOLDS, A.M., M.D.,

LOUISVILLE, KY.,

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of Kentucky; Surgeon to the Eye and Ear Department  
of the Louisville City Hospital, the Louisville  
Eye and Ear Infirmary, etc.

IN undertaking to present some of the evidences of the therapeutic value of adrenalin, I feel obliged to limit myself to personal experience. Twelve hundred and twenty-two experiments form the basis of this report; most of the experiments were made at my clinic, at the Hospital College of Medicine.

My first experiment was with a case of muco-purulent conjunctivitis. After cleansing the conjunctiva with a solution of borax, I instilled one drop into each eye of the adrenalin solution in distilled water, 1 to 10,000. In less than one minute the eyes were perfectly clear and free from any sign of vascular injection. This condition remained twenty-two minutes, when it was noticed the vessels were beginning

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\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.



to dilate. The full effect of the drug did not pass off, however, until forty-five minutes had elapsed.

The next case was a foreign body in the cornea, which had remained twenty-four hours. The eye was very red and watery, with morbid sensibility to light. One drop of adrenalin solution in distilled water, 1 to 10,000, cleared up the eye completely in three-fourths of a minute. A solution of cocaine was instilled, and the foreign body removed. At the end of one hour the eye was still clear and free from irritation. The patient did not again return.

M. S., æt. 43, kerato-cyclitis, from a blow received in the eye. Tension +, eye very red, painful, and with profuse lachrymation, photophobia, striated interstitial opacity of the cornea obscuring the pupil. One drop of the adrenalin, 1 to 5000, in normal salt solution, reduced the tension, and dissipated every manifestation of vascularity within one minute. Twenty-four minutes after the application the first sign of returning vascularity appeared. The photophobia and lachrymation ceased before the end of the first minute. No other local treatment was applied.

January 15th, patient returned with decided improvement in the condition of the eye. Another application of a single drop of the adrenalin solution was made and directed to be repeated every four hours.

January 16th, the eye is still more improved, and the corneal opacity much diminished. The pupillary area is now distinctly visible without illumination. Improvement continued from day to day until January 24th, when but slight opacity was visible at the inferior margin, and the vascular injection of the cornea, as well as of the conjunctiva, had entirely disappeared. This case is remarkable because the kerato-cyclitis had resisted treatment about four weeks before the application of the adrenalin.

January 25th, the patient had entirely recovered; no irritation in the eye. Sight = fingers at 3 feet.

January 14th, M. B., æt 30, tanner. On January 2d, patient received a blow in the right eye, which caused great pain and sudden loss of sight. Dr. S., who was called to see him, found the anterior chamber filled with blood, which gradually disappeared by absorption. The cornea, however,

was so opaque as to render the pupil invisible. Two eminent specialists were consulted, and the treatment suggested by them was continued until all signs of irritation in the eye had ceased. The corneal opacity, however, remained.

At my first examination, January 14th, the pupil could be located by oblique illumination only. The patient was unable to count fingers at any distance. One drop of the solution of adrenalin was instilled and directed to be repeated three times every day.

February 24th, patient sees in the injured eye =  $\frac{6}{24}$  Snellen.

February 28th, patient claimed to have greatly improved in vision. The opacity of the cornea was no longer visible. He now reads  $\frac{6}{12}$ .

March 16th, the condition of the eye seems normal. Sight =  $\frac{6}{9}$  + Snellen.

January 15th, S. J., æt 46, syphilitic iritis of ten days' duration; gummatous nodules project from the margin of the pupil. She has been taking what is called the mixed treatment.

For the relief of the pain she was directed to have 10 grains of the salicylate of sodium in a large glass of water, to be taken every hour from 6 P.M. until relieved. The mercury was discontinued and five grains of the iodide of potassium in a half pint of water, every three hours, each dose to be followed by a half pint of fluid nourishment, was directed. The conjunctivæ were unusually injected. One grain solution of the sulphate of atropin in two drachms of water was directed to be instilled into the eyes every three hours.

January 16th, patient rested better last night after taking the salicylate. Pupils still contracted; no change in treatment.

January 18th, no apparent change being present, a drop of the 1 to 10,000 solution of chloride of adrenalin, in normal salt solution, was instilled into each eye. Two minutes afterward the eyes were pale as marble, and only the larger sub-conjunctival vessels were visible. The patient was detained for observation. Two hours afterward the eyes were still clear, and a drop of atropin solution was instilled and the patient directed to continue as before.

January 19th, the pupils are now for the first time dilated in the spaces between the gummata. Adrenalin is to be continued three times daily.

January 21st, a few points of synechia prevented complete dilatation of the pupils. The conjunctival injection was greatly diminished. There can be no doubt of the beneficial effects of the adrenalin in assisting the action of the atropin.

January 26th, patient shows no signs of iritis; the gummata have disappeared. The pupils are dilated ad max. and the conjunctival injection is entirely absent. The patient was discharged free from any sign of irritation in the eye on the 7th of February.

In an aggravated case of chronic purulent conjunctivitis, complicated with trachoma, after instilling a drop of adrenalin solution, the trachomatous bodies were crushed out, and the eye flushed with bichloride of mercury solution at intervals, the adrenalin seemingly greatly hastened recovery.

In a variety of different forms of iritis, and a large number of cases of phlyctenular keratitis, the adrenalin apparently greatly hastened recovery, and certainly improved the patient's comfort in every instance.

I have not the time nor you the patience to go further into details. I will close by summarizing some of the effects I have witnessed from its use.

First. It is a powerful hemostatic and acts promptly, generally within one minute from the time it is applied locally to mucous surfaces.

Second. Its effects persist from twenty minutes to four hours.

Third. It promptly relieves ciliary pain in all forms of keratitis, iritis, and even the cyclitis of glaucoma.

Fourth. It reduces ocular tension in glaucoma, and apparently prevents hemorrhage in iridectomy.

Fifth. It promptly clears up interstitial opacities of the cornea, following contusions, and seems to favorably modify the opacities of keratitis-punctata in cases of syphilitic iritis.

Sixth. It will in many cases so reduce the swelling in the tear passages as to allow a stream of fluid to pass from Anel's syringe through the duct without the use of a probe. In an old purulent dacryo-cystitis, the pus being pressed out with



the finger through the tear sac, about two minims of adrenalin was passed in with the Anel syringe. Five minutes later a charge of chloride of sodium solution passed readily through the duct into the nose. Repeating this procedure daily prompt recovery was secured without the introduction of the probe. In a great variety of tinnitus aurium prompt and sometimes lasting benefit follows the introduction of a drop of adrenalin solution through the Eustachian catheter, blown into the tympanic cavity. A number of cases of tinnitus, without serious impairment of hearing, have been permanently relieved by two or three applications of the adrenalin through the catheter.

Seventh. In all forms of swelling in the lining of the nose prompt relief follows the application of four or five minims of the adrenalin solution sprayed into the passage. In this way the superior crypts may readily be opened, and medicated fluids sprayed into the passage, or other applications made, where access is otherwise impossible.

It renders operations in the nasal passages and elsewhere nearly or quite bloodless, and does not, as some claim, predispose to secondary hemorrhage, but has a contrary effect. The 1 to 1000 solution of adrenalin in chloride of sodium may be relied upon to relieve any case of epistaxis.

In cases of secondary hemorrhage, after operations in the nasal cavities or tonsils, an application of adrenalin solution on a cotton mop, pressed upon the bleeding surface, proves promptly efficient as a hemostatic.

The adrenalin solutions are, in every sense of the word, superior to any preparation of the suprarenal extract, or of the desiccated glands, which I have been able to procure, and I think the world is deeply indebted to Takamine for his discovery.

#### DISCUSSION.

DR. ADOLF ALT, St. Louis.—Parke & Davis sent me, and I suppose some of you, a half-dozen bottles of adrenalin in December last, and I have experimented quite largely. I agree with the gentleman in regard to its effect in bleaching the mucous membrane, but I fail, aside from this, to see any therapeutic value in the treatment of eye affections. Unless

you use cocaine you cannot even operate painlessly. I have tried it faithfully in all sorts of diseases of the eye, and also in the ear where I thought I might help to shrink the swollen membrane, but in the latter I did not succeed. Adrenalin will, furthermore, deteriorate even when the bottle is not opened. At least my solutions all show a fungus growth now, and they do not act by far as promptly as they did in the beginning. Only a few weeks ago I tried to demonstrate its action in the German Medical Society of St. Louis, with no success whatever. Still, I think the fresh solution acts promptly as a vaso-constrictor, and is therefore of some value in rendering operations on mucous membranes bloodless, or at least less bloody.

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## REPORT OF A CASE OF GLIOMA OF THE RETINA.\*

By J. H. JOHNSON, M.D.,

KANSAS CITY, MO.,

Professor of Ophthalmology and Otology, College of Physicians and Surgeons, Kansas City, Kansas; Professor of Ophthalmology and Otology, The Western Dental College, Kansas City, Missouri.

THE patient in the case, I wish to report, was a six-year-old boy, raised at Olathe, Kansas, who had previously been apparently healthy. When I saw him the parents had for some time noticed the yellowish or whitish-red light, which is known as the amaurotic cat's-eye, especially in a room not well illuminated. This condition remained unchanged for quite a while. The parents had no suspicion that anything was wrong with the child until the vision in the left eye began to fail; then they realized that something must be wrong, and sought the aid of a physician, who did not recognize the real nature of the case.

The eyeball increased in size for a time, then it began to shrink. Thinking that another physician might understand the case better, they discharged the one that had been treating the case. The physician who followed gave them encouragement by telling them he could cure the case in a short time and that the former doctor had not given the proper treatment. But it was only a short time until the eye began

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\*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.

to enlarge again, glaucoma setting in, accompanied with great pain. This the doctor was unable to control, and Dr. McCall was called in consultation. The doctor found panophthalmitis of such a degree that it threatened the integrity of the eyeball. He recommended that the child be taken to Kansas City to have the eye enucleated.

The patient was brought to me on May 1st. He was a bright boy, well nourished, and had lost but little flesh. His parents were of German descent, healthy, and gave no history of any ancestors having had glioma or any other malignant trouble. When I first saw the patient he was suffering with a great deal of pain. His eyeball was staphylomatous and filled with pus. The only thing left to do was to enucleate the eye, which I did, merely expecting to relieve the suffering temporarily. After dividing the tendons of the recti muscles, with curved forceps the optic nerve was seized from the nasal side of the orbit, drawn far forward and severed as far back as possible with enucleation scissors inserted at the temporal side of the orbit, in hopes to remove all the malignant cells. In this we failed, because the disease had extended into the optic nerve beyond where it was severed and also into the surrounding tissue in the posterior part of the orbit. Knowing that the condition was certain to return in a short time, I informed the parents of this. Two months later the case returned to the city with the growth beginning to extend beyond the eyelids. Thinking that a picture might be appreciated in the near future, I requested the father to allow us to photograph the patient, which he granted. The patient had become hard of hearing in the left ear and also complained of toothache, especially in the lower teeth of the same side. I found that this was due to pressure caused by infiltration of the malignant cells into the upper jaw, gums and surrounding tissue, including submaxillary and parotid glands on that side, causing a certain amount of swelling, especially in the gums. I called Dr. Sullivan, a dentist, to examine the teeth, who agreed with me that the pain was not due to the teeth but was a reflex pain due to the pressure upon the superior maxillary nerves.

The father said: "O, Doctor, do something for my child!" I told him that I could do nothing only to use palliative remedies to relieve the suffering, that the case was be-



yond all human skill, but if he thought any one could do anything to help his child to try him. He consulted several colleagues but received no encouragement from them, their prognosis being the same in each case.

They returned to Olathe, where the condition went from bad to worse. The tumor increased at a rapid rate. Then a tumor about the size of an orange formed on the left knee, as also several small ones in other regions, yet the vital organs did not seem to be affected. The cachexia at this time was marked. The patient was at all times conscious and was so until death ended his suffering, which extended over a period of about five months from the time I first saw him.

I feel it to be my duty to acknowledge my indebtedness to Dr. McCall for kindly assisting me in the operation and getting a picture for me at the close of the case.

#### DISCUSSION.

DR. ADOLF ALT, St. Louis.—These cases are of the worst ones we have to deal with, especially when we get to see them at such a late stage that there is nothing to be done. However, it is gratifying to know that if we see them early enough we can sometimes by prompt action save life. Quite a number of such cases are now on record, and I have had also a number of cases in which the early removal of the affected eye has saved life. The worst cases, however, are those of binocular glioma. I have reported elsewhere the case of a little girl about one year old who was brought to me with glioma of the retina in one eye. I got the parents' consent to remove the eye, and this little girl is now a young lady and came to see me the other day to get glasses for the other eye. She is perfectly strong and healthy. A year after this eye had been removed they brought her sister, fearing the same trouble. To my dismay I found she had glioma in both eyes. I told the parents the question was simply the saving of life by removing both eyes. They would not consent, and the child died in five or six months after terrible suffering. As I said, if we see the cases early enough and get the consent of the parents to remove the eye, we have by prompt action the occasion of saving a life once in a while. I think that almost every oculist has seen a number of such cases.

A PLEA FOR THE OCCASIONAL PERFORMANCE OF  
THE OPERATION OF DEPRESSION IN  
CASES OF CATARACT.

By HENRY POWER, F.R.C.S.,

Consulting Ophthalmic Surgeon to St. Bartholomew's Hospital.

IT is somewhat singular that a mode of dealing with cataract that has been in use from the most remote antiquity, which was recommended and practiced by Celsus and Galen, and which is even now almost universally adopted by native operators in the vast continent of India, should have passed into such complete desuetude in this country that I think it quite possible there may be some in this room who have never seen it performed. Various circumstances have contributed to this result, but especially the discovery of chloroform and the employment of solutions of cocaine, which enable the operator to use the knife with far greater precision and success than was possible to his predecessors. The invention of the spring speculum and of the fixing forceps, and the modification of the awkward form of the knife of de Beer into the handy instrument given to operators by von Graefe have had their influence, and finally and above all the introduction of the principles of antisepsis in the operations on the eye—these, each and all, have eliminated many causes of failure, and have contributed their share in turning the attention of ophthalmic surgeons from a practice that was once all but universal.

The results that have been obtained by those who have had large experience in the method generally practiced of extraction are certainly extraordinarily good. In the Ophthalmic number of the *Indian Medical Gazette*\* Lieutenant-Colonel T. H. Pope, I.M.S., remarks that it often happens in the Madras Hospital that a run of 300 successful cases occurs, but he adds immediately following this, 4 or 5 cases fail either from suppuration, or severe irido-choroiditis, or some unknown cause, and so the average success at once fails. It must be remembered, however, that the term success is applied to all cases that with correcting glasses have distant vision between  $\frac{6}{6}$  and  $\frac{6}{36}$ , and who can see No. 10 Jaeger with a + 10 D or 12 D lens. It is difficult to say whether the operation of

\**Indian Medical Gazette*, June, 1901, p. 201.

“depression” would under any circumstances give equally good results, because we have but few statistics to hand that deal with large numbers, or that have been undertaken with the same care and precautions as are now adopted in cases of extraction. Yet when depression or reclination was performed by a practiced hand the results seem to have been very good. Himly, to take one example only, states in his work published in 1843 that severe inflammation rarely followed reclination, and when it did it often cleared up without leaving any bad consequences. He seems to have been very successful in his cases of reclination, for in 50 cases he only had two failures, one of which was amaurotic and should not therefore have been operated on.

When the result of depression is fortunate, the operation is certainly exceptionally brilliant. At a stroke vision is restored, and less damage is done to the eye than in any operation with the knife. Surgeon-Major Maynard, I.M.S., observes\* that in sixteen extractions the other eye had been couched by some quack with varying, though often brilliant results. This statement is rather suggestive when we reflect on the conditions under which “depression” is performed in India. All the surgeons I have conversed with, and who have seen native practice, state that no antiseptic measures are adopted; that the instrument is a needle, often blunt and rusty, or even a thorn, and that no after-treatment is carried out. Under such conditions, far from obtaining “brilliant” results, one would expect that the operations would invariably fail.

The ill-effects that I find charged against depression are violent vomiting, irido-cyclitis, suppuration of the globe, glaucoma, and sympathetic ophthalmia. My experience of this operation is, of course, very limited as compared with that of the itinerant oculists of India; but I may remark that I saw it performed by the two Guthries, and by Mr. Hancock, and that I operated in this way several times myself in my younger days, without any of these terrible results occurring. The supervention of vomiting was much dreaded, but we, who have gone through the chloroform period, know that, however objectionable, vomiting does not commonly lead to

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\*Indian Medical Gazette, June, 1901, p. 201.



loss of the eye even in cases where extraction has been performed. Yet its occurrence led many Continental surgeons to recommend their patients to forego the advantages of chloroform, in view of the likelihood of the occurrence; and we all rejoiced when the discovery of cocaine enabled us to dispense, in the majority of cases, with chloroform.

As for septic inflammation and suppuration, depression has had no chance, for the proceedings by which comparative immunity from these troubles have been secured had not been evolved by the patient labors of Lord Lister and the bacteriologists.

Irido-cyclitis is a possible result and certainly did occur, but I think chiefly in those cases in which the lens broke up under the pressure used to effect its depression. When that occurs the judicious operator will withdraw the needle and wait. It is far better than to risk the entrance of large fragments into the anterior chamber or the introduction of curettes through an enlargement of the little wound in the endeavor to draw them out. Breaking up of the lens defeats the object of effecting depression. It is better to wait and then act according to circumstances.

Another bad effect mentioned in books—glaucoma—does, I suppose, occasionally follow the operation of depression, but it is surely much less to be dreaded than formerly, since a subacute attack can be controlled with eserine, and an acute attack can be met by an iridectomy. The danger of the chronic form leading to the glaucoma absolutum of von Graefe appears to me to be somewhat exaggerated. These glaucomatous affections have been attributed to the contact of the lens with the retina, but it is notorious that the lens does not soon or readily fall to the lowest point of the globe. We have all of us, I suppose, seen cases of lenses dislocated by violence, and have not always thought it prudent to interfere with the object of removing it, particularly if the vision, with a correcting glass, is good. Such lenses often remain harmless for considerable periods. I have seen several such cases following blows with footballs, cricket balls, and tennis balls, as well as from soda water and champagne corks. It is to be observed, moreover, that years may elapse before chronic glaucoma follows the act of depression, if that is really the cause of it; and if at 75 or 80 years of age a slight

operation secures four or five years of good vision, I think we are justified in running the risk, where other circumstances contraindicate the operation of extraction. Lastly, in view of the microbic origin of sympathetic ophthalmia, now very generally entertained, I do not see any more reason for anticipating the advent of that affection, if proper antiseptic precautions are taken in depression, than after extraction.

I do not, of course, advocate any change from the ordinary procedure for the extraction of cataract when the general and local conditions are favorable. Given a wholesome constitution and a healthy eye, and extraction, even at an advanced age, may be successfully performed; and I am well aware that, on the other hand, there are several conditions which either preclude, or at best render extremely doubtful, any attempt to depress the lens, such as, for example, the presence of adhesions between the iris and the capsule and a soft and degenerated lens, since in the former case any drag upon the lens is likely to detach the iris more or less completely from the ciliary zone, leading to hæmorrhage and other complications, and in the latter case because the lens is apt to break up and excite iritis and iridocyclitis.

The cases in which I am of opinion it would be advisable to practice depressions are:

1. Those in which such combination of difficulties are present as to render it doubtful whether any operation at all should be undertaken—as, for example, in those who are greatly enfeebled by age and other infirmities. In this condition the ordinary operation for cataract fails, even where performed by the most expert, simply from non-union of the lips of the wound.

2. Those in which there are physical obstacles to the performance of the operation for extraction, as, for example, where there is an extremely small palpebral fissure, or where the eye is small and very deeply set in the orbit. In such cases, if the surgeon attempt to extract, he is apt to make too small an incision; the opening has to be enlarged with scissors, or with the blunt-pointed knife the lens has to be squeezed out; much cortical matter is left behind, and well-known after-trouble arises.

3. In cases in which a troublesome condition of chronic conjunctivitis is present that does not yield to treatment.



Here the conditions are favorable to depression, unfavorable to extraction, for the conjunctiva can be cleansed, and so far temporarily rendered antiseptic, and there then is little danger from a small puncture, the wound closing before any infection can occur, whilst it is different with the incision for cataract; for the conjunctival sac, especially if some dacryocystitis be present, cannot after the operation be so scrupulously purified, and hence infection proceeding from the edges of the wound may occur a day or two after the operation.

4. There is yet another complication of cataract: deafness, as in one case in which I greatly regretted I did not endeavor to depress instead of performing extraction in the usual way. I had known the patient for a long time; she was nearly 80 years of age. The cataracts were hard, and with the failure of sight deafness gradually advanced. I operated in the usual way—von Graefe's knife, upper section, iridectomy. The operation went off well, and for three days no bad symptom arose. One night, weary, I suppose, of the confinement and persistent bandaging, and anxious to know whether the operation had succeeded, she pushed up the bandage with her fingers, opened the wound; severe inflammation followed, and the eye was lost. In that case it appears to me I should have done better to have depressed, kept the patient in bed for one day, and then allowed her to go about as usual.

5. Other classes of cases in which depression would probably give better results than extraction are lunatics, imbeciles, and idiots, in all of whom interference with the bandages is a not unlikely event, and requires, at all events, to be carefully guarded against, whilst with depression the patient need scarcely be kept in bed or on a couch for more than a day, or may be allowed to go free from the moment of operation. Such patients are sometimes so timid that they throw themselves into paroxysms of passion, as was the case with the deaf-mute, James Mitchell, recorded in the *Philosophical Transactions*, for whom Mr. Wardrop constructed a sort of coffin with a hole for his head. Again, I always feel some hesitation in undertaking extraction in old, fat, flabby, and phlegmatic patients, because they are more liable to complications than thin alert persons. The former are often gouty or rheumatic, do not bear confinement well, and require a course



of preliminary treatment, the main features of which are purging and exercise. I operated by depression on such a patient about 1860, and the case did well for a year, but standing one cold spring day at a railway station she caught cold, and severe rheumatic inflammation followed, which led to the loss of the eye. Nothing daunted, she submitted the opposite eye to a similar operation, and I had the pleasure of subsequently seeing her reading and working for a period not far short of twenty years, the floating lens being very visible when the eye was turned down.

6. Chronic bronchitis is not an uncommon concomitant of old age, and has been the cause of separation of the lips of the wound, and hæmorrhage or suppuration in many cases of extraction; such dangers would be avoided by the use of the needle instead of the knife.

7. There are some cases of cataract in which the experienced operator dreads the consequences of attempting to extract, or refuses altogether to treat. I mean those in which, from softening or liquefaction of the vitreous, the iris trembles, and the lens easily shifts its place. If a large cut be made, the vitreous flows away with the lens. The latter, indeed, sometimes sinks out of sight, and requires to be fished for with great risk of injury to adjoining parts. Collapse and loss of the eye then follows, though it must be admitted that such eyes sometimes plump up again and become serviceable.

8. Another class of cases in which "depression" may be preferred to "extraction" is where one eye has been unsuccessfully operated on. If the patient has had much pain, whilst he can still see large objects he not infrequently declines to submit to a second extraction; but if the nature of the operation for depression be explained to him he will not demur.

Lastly, though this is extremely rare as a contraindication to "extraction," there is the hæmorrhagic diathesis. Few, I imagine, would care to use the knife in a patient who was known to be the subject of hæmophilia.

These seem to me to be the chief circumstances under which it would be at least allowable, if not advisable, to revert to the ancient method of "depression" for the restoration of light in cases of cataract.

# MEDICAL SOCIETIES.

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## PROCEEDINGS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.\*

*Thursday, October 17th, 1901.*

### PRIMARY CHRONIC GLAUCOMA.

THE PRESIDENT took as the subject of his presidential address Some Clinical Experiences of Primary Chronic Glaucoma and the Value of Iridectomy. After paying a tribute to von Graefe for the benefit he had conferred on mankind by introducing iridectomy for the treatment of glaucoma, he stated that we were still following in his steps. Myotics indeed had been introduced since his day and were of considerable use, but their action in his opinion was purely palliative and not curative. Iridectomy was the only known cure for this disease which was so fatal to eyesight. Its pathology had been so much elucidated in late years by the researches of Brailey, Priestley Smith, Nettleship, and Treacher Collins, that a rational idea could not be held as to how iridectomy acted. It was difficult to follow up cases years after operation, but only in this way was it possible to draw accurate conclusions. In the years between 1886 and 1894 he had operated on 67 cases. Of these, 11 were dead, 19 were not to be found, while 37 had been traced. Of these, 10 had become blind—1 from atrophy of the globe, 1 from recurrence of the disease, and 8 from optic atrophy. In all but one the tension was normal. In 4 of the remaining atrophy was going on, while in 23 the vision was better than when the operation was performed; in others it was the same, and in a few it was a little worse; that was to say, 62 per cent. held their ground from seven to twelve years after the operation, while with one exception the tension was normal. He was therefore of opinion that in the majority of cases iridectomy did reduce tension permanently. In 1887 he operated on the only remaining eye when the vision was  $\frac{6}{9}$ . A few months ago he

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\*British Medical Journal.

had seen the patient, who saw quite well; the fields, however, had undergone contraction to 10 degrees. Another successful case he had followed for nineteen years. In a case he had operated on for acute glaucoma the patient retained good vision for the rest of her life, which was 27 years. He thought that an operation should be done on every case in which the patient was strong enough to stand it, and the earlier it was done the better; but he would never hesitate to operate on an eye even if the field were contracted to fixation, provided there was any vision worth saving. Even in the premonitory stage he advocated operation.

MR. NETTLESHIP, in moving a vote of thanks to the President for his address, said how cordially he agreed with the views he had expressed.

MR. SILCOCK seconded the vote, which was carried.

#### RODENT ULCER OF THE CORNEA.

MR. S. JOHNSON TAYLOR read some notes on a case of rodent ulcer of the cornea of a child, a condition rare at any age, but particularly so in children. The patient was aged three years. When first seen the condition resembled and was taken for a phlycten of the cornea, and was treated with atropine and yellow ointment, and iron was given internally. A little later there was a little discharge, but the palpebral conjunctiva was quite smooth. He then left off the atropine and used yellow ointment, and painted the patch with silver nitrate five grains to the ounce; the strength was increased to ten grains, but still the ulcer spread. He then gave an anæsthetic, when the upper third of the cornea was found to be ulcerated and vascular with a grey infiltrated part below. There was no iritis or hypopyon. He scraped the surface and painted it with pure carbolic acid, and used quinine lotion, atropine, and iodoform. It then steadily improved and healed. In all such cases it was necessary to use strong remedies, and the benefit obtained was well illustrated by the ready way in which this ulcer yielded to the treatment when it had successfully resisted milder measures.

MR. LINSLEY JOHNSON said that although the disease was very rare in man, yet he had seen a large number of cases in young bears, in lions, and in rats. In lions and in bears he



always applied either pure carbolic acid or solid stick of silver nitrate, and this usually arrested the ulceration. He had always found a micro-organism present, and he asked whether in the case under discussion there had been any contamination with animals.

MR. JOHNSON TAYLOR, in reply, stated that he considered the condition was microbic in origin, and that his patient had certainly not been in contact with wild animals or as far as he knew with rats.

#### CARD SPECIMENS.

The following card specimens were shown: Mr. Marcus Gunn: Persistent Double Keratitis Without Tendency to Ulceration in which several members of the family were affected; there was no suspicion of syphilis, but a marked history of consanguinity.—Mr. Lindsay Johnson: A Case of Deep-Seated Infective Conjunctivitis.—Mr. Sydney Stephenson: A Case of Congenital Distichiasis.—Mr. Treacher Collins: A Case of Mooren's Ulcer of the Cornea Six Years After the Disease had First Started.—Mr. N. Bishop Harman: (1) Case of Paresis of the Third Nerve in which, on lifting the drooping lid, there was coincident drooping of the sound lid; this occurred in a man, aged 35, and had been present three months, probably syphilitic in origin. (2) Choroidal Angiosclerosis With Pigmentary Degeneration.—Mr. G. W. Roll: Congenital Patch of Pigmentation in the Fundus Oculi.—Mr. Cargill: Sclero-Corneal Dermoids in Both Eyes.—Mr. Silcock: Primary Chancre of Eyelid in an Infant.

DISCUSSION ON THE DIAGNOSIS, PROGNOSIS, AND  
TREATMENT OF PERNICIOUS MYOPIA, IN  
THE SECTION OF OPHTHALMOLOGY,  
BRITISH MEDICAL ASSOCIATION.\*

W. H. H. JESSOP, M.B., F.R.C.S., President.

MR. PRIESTLEY SMITH said: We know by experience that myopia in many persons is an innocent condition, which continues through many years without much change, causing some inconvenience, it is true, but not leading to disaster of any kind. We know, on the other hand, that in some persons myopia is a pernicious condition which reaches a higher and higher degree as time goes on, is accompanied by damage to the tunics of the eye, and leads sooner or later to serious impairment or loss of sight. By what means and to what extent can we distinguish between these different forms of the disorder in their early stages? What can we do to arrest or hinder the progress of a pernicious myopia? These are the practical questions which we have been invited to discuss.

By some authorities innocent and pernicious myopia are sharply distinguished from each other as two essentially different conditions, just as in some works of fiction the good people are sharply distinguished from the bad. In neither case, I think, is the distinction true to life. In myopia, as in human nature, we find between the two types innumerable grades, variations, and combinations, among which there is no place for a dividing line. There are many cases of myopia which cannot be classed forthwith as innocent or pernicious. In attempting to predict their course we have carefully to consider many factors and many possibilities. The chief data on which any forecast must be based are, I think, the following:

1. The age of the patient.
2. The grade of the myopia.
3. The condition of the choroid and retina.
4. The constitutional condition.
5. The evidence relating to heredity.
6. The occupation of the patient.

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\*British Medical Journal.

I propose to deal briefly with each point, and must speak dogmatically, for time will not permit of cautious arguments and reservations. I hope by so doing to provoke the more discussion.

1. *Age*.—Other things being equal, the younger the patient the more likely is the myopia to increase in degree. In childhood and early youth myopia is rarely stationary. It usually increases during the period of bodily growth, and the rate of increase diminishes with the approach of adult life. In a large number of cases, perhaps in a majority, it comes to a standstill between the ages of 15 and 25. Age alone, however, justifies no inference.

2. *Degree of Myopia*.—Other things being equal, the higher the myopia the more likely is it to increase. For example, if fifty children, all of one age, have various degrees of myopia, the future increase of their myopia will, on the whole, be greater among those who are more myopic than among those who are less myopic. The same rule holds in adult life; but for all degrees of myopia the probable future increase is less than in early life. It follows that a high myopia in a child is of very evil augury. A child who has 10 D. when he is 10 years old is likely to have 20 D. when he is 20. Fortunately such cases are rare. But in adults we can form no forecast, even from the grade of the myopia and the age taken together, unless we take also into account the actual state of the choroid and retina.

3. *Condition of the Choroid and Retina*.—The average vision of myopes sinks as the grade of the myopia rises. Richardson Cross has given striking statistics on this point.\* The higher grades are to be feared far less for the error of refraction which glasses can correct than for the loss of vision due to choroidal and retinal changes, for which there is no remedy. In general these changes vary in gravity with the grade of the myopia, but they bear no fixed proportion to it. With equal grades of myopia they are more extensive in the older persons than in the younger. A child with a myopia of 8 D. may have little or no choroidal change, but we must not regard him as permanently exempt; it is likely to develop later. An adult with 8 D. will generally show considerable

\*Richardson Cross, British Med. Jour., 1896, vol. ii., p. 633.



choroidal change; should he exceptionally show none, he is safe; at any rate, much safer than the child.

What is the essential nature of these changes? They are, in their usual order of occurrence, first, the typical myopic crescent, then the more diffuse and patchy thinning of the choroid in the adjacent region, then pigmentary and hæmorrhagic changes in the retina at or near the macula, and in some cases detachment of the retina. The nature of the crescent is beyond dispute: it is due to stretching and displacement of the choroid in relation to the disc, brought about by yielding and extension of the sclera. Weiss, and lately Heine, have demonstrated the fact of this displacement by traction in the clearest manner. The more diffuse changes which occur later appear to be due to further stretching accompanied by vascular and degenerative changes in the damaged membranes.

But this statement does not cover the whole ground. In certain cases myopia develops rapidly in connection with obvious inflammation of the choroid, as in some cases of syphilitic choroiditis. Here the choroiditis seems to be the primary disorder, the yielding of the sclera the consequence. Further, in the region of the posterior staphyloma, we find, on dissection, that the choroid and sclera are abnormally adherent to each other. Here is evidence of sclero-choroiditis. Is myopia, then, in general, a result of an insidious choroiditis? Apparently not, for in the earlier stages there is usually no discoverable inflammation, and there is no retinal damage such as we should expect if the underlying membrane were inflamed. On the other hand, it is clear that congestion and inflammation do play an important part in certain stages and certain forms of the disorder, and chiefly in the pernicious forms. To what extent the yielding of the sclera and the vascular and degenerative changes in the choroid and retina depend on constitutional causes, rather than on the mechanical effects of muscular action, dragging on the optic nerve, pressure of the orbital contents, and so forth, is an important question.

4. *Constitutional Condition of the Patient.*—We all see cases in which a rapidly progressive myopia is associated with malnutrition from one cause or another. Nettleship, speak-

ing of myopia, says: "General enfeeblement of health, as after severe illness or prolonged suckling, seriously increases the risk of its progress, even after middle life."\* Wray found in several cases that where one member of a family had a high myopia, while the brothers and sisters had none, the myope had suffered from protracted infantile marasmus, the others had not.† Schwabe, from extensive observations in Leipzig, concludes that men and women acquire high myopia with equal frequency, but at all ages the reduction of vision is greater in the women than in the men. The complications of high myopia, he says, are twice as common in women, and begin to appear in the lower grades, 6 to 10 D., while in men they are uncommon under 10 D. He attributes the difference to the greater liability to illness in women, their lack of exercise in the open air, and especially, as regards the graver complications, to the climacteric.‡ I may here repeat a suggestion made at one of our annual meetings, eleven years ago, that the yielding and deformation of the sclera in some forms of myopia is analogous to the yielding and deformation of the bones in rickets. Special attention to the question has been given by Batten.§ He has advanced evidence to show that the development of myopia is frequently connected with chronic constitutional disturbance, and especially with high arterial tension. But of his observations I will leave him to speak. It is clear that constitutional disease may be a factor in any case of myopia. It may account for the abnormal yielding of the sclera; it certainly often aggravates the morbid changes in the choroid and retina.

5. *Evidence Relating to Heredity.*—The tendency to myopia is very frequently hereditary. Some observers hold that inherited myopia is commonly an innocent disorder, while the non-hereditary forms are usually pernicious. Have we statistics in proof of this? It would be difficult to obtain them, for we cannot exclude heredity merely by examining the father and the mother. Moreover, at the time of life when the complications of high myopia chiefly occur the

\*Nettleship, *Diseases of the Eye*.

†Wray, *Ophth. Rev.*, 1897, p. 359.

‡Schwabe, *Nagel's Yearbook*, 1894, p. 147.

§Batten, *Ophth. Rev.*, 1862, p. 1.

patient is not likely to bring his parents with him. They are probably inaccessible. Hereditary or family myopia, even of high degree, is sometimes of remarkably innocent type. Maclehorse has published a striking instance of this.\* But heredity confers no immunity from pernicious complications. I know a family where the father has myopia of 10 and 6 D., and two daughters have each lost the use of one eye through complications of high myopia which occurred during adult life. The other sons and daughters are all, or nearly all, free from eye trouble. No doubt it is better to have a myopia inherited from one's parents and an otherwise sound organism, than a myopia acquired for one's self by reason of debility or disease; but we must not pronounce a myope to be safe simply because his parents were myopic before him.

6. *Occupation.*—The future of many myopic eyes depends on the way in which they are used. Prolonged and habitual close work does harm. We see the effect in overworked school children, clerks, schoolmistresses, literary men, seamstresses, jewelers, typesetters, and others. We see it not only in the greater prevalence of complications among such persons, but in individual cases. Excessive close work in early life is often accompanied by rapid increase of refraction; in later life it often aggravates the graver complications. Patients who must, or will, continue such work in excess especially those whose working distance is already too short, and who decline to lengthen it by the aid of glasses, are encouraging their myopia to run a pernicious course. The amount of risk must be estimated from the grade of the myopia, the age of the patient, and the amount of choroidal change already present. To give a bad prognosis by way of warning is sometimes the best or only way to prevent its fulfillment.

Time forbids me to enter upon the question of the treatment, and I have no desire to do so, for I had my say on that subject at the annual meeting of our Association held in Birmingham in 1890,† and have little to add at the present time. I will only repeat one leading principle, namely, to suspect every myopia, and especially every youthful myopia, of a

\*Maclehorse, *Ophth. Rev.*, 1897, p. 207.

†*Ophth. Rev.*, 1890, pp. 313 and 345.



tendency to increase, until time has proved it to be stationary; to be doubly suspicious in presence of congestion or atrophy; and to re-examine at intervals of six months, twelve months, or longer, according to the nature of the case. Only in this way can we decide on the rational measures of precaution which are needed in each case and which are the essence of treatment. We can do far more important service to our short-sighted patients, if they will let us do it, by helping them to avoid a pernicious development of their disorder, than by any attempt at remedial treatment after the fact.

MR. PERCIVAL, after entering into an account of the action of the oblique muscles, contended that when the eyes were converged and depressed as in ordinary reading, together with the internal recti, the superior obliques were chiefly called into play, and to a much smaller extent the inferior recti, in order to overcome the slight residual torsional action of the superior obliques. This, he considered, had an important bearing on the development of posterior staphyloma and perhaps of retinal detachment, as the two obliques would exert a lateral pressure on the eyeball and would tend to squeeze the eye into the shape of a lemon; and it would be the uveal posterior pole which would give way first. He stated that he was in the habit of cautioning his myopic patients against depressing their eyes, and he advised them to read in an arm-chair, so that the book could be conveniently held at the level of the head by resting their elbows on the arms of the chair. By these and similar methods he had been able to arrest the myopia, notably in four bad cases.

MR. HENRY POWER warmly complimented Mr. Priestley Smith on his interesting paper. He could only approach the subject from a purely practical point of view. In the case of a myopic child, he was very particular that he should be seated in a position near a window from which good light would fall upon the book. Secondly, great attention should be paid to prevent the patient from acquiring the habit of holding the head too near the book; and, thirdly, the utmost care should be taken to insure that the diet was full and sufficient, and particularly that no work should be done before breakfast. The diet as a rule in schools he was satisfied was insufficient.

DR. A. DARIER said that, after the excellent paper by Mr. Priestley Smith, there was but little to add except to point out the benefit which sometimes followed massage of the globe in myopia. Judging from cases of traumatic myopia in which a blow considerably increased the myopia present, one would expect that massage would do more good in cases of hypermetropia or presbyopia. This was also found to be true, but at the same time cases of low myopia were greatly benefited by it, difficult as it might be to explain. He had seen boys and girls after massage able to see as well without as with their former glasses of — 1.0 D. or — 1.50 D., and in higher cases the vision with glasses could be much improved by massage. He considered that this was caused by its strengthening the ciliary muscle, increasing the nutrition of the membranes, and lessening the tension.

MR. THOMPSON confirmed what Mr. Priestley Smith had said, that no hard-and-fast line could be drawn between cases of stationary and progressive myopia. With regard to chorooiditis, a useful distinction could be made between cases with a well-defined crescent, whether single, double, or even treble, and those with some changes beyond the crescent. The former cases, if they saw well, might safely be ordered full correction for general use if the myopia did not exceed — 6 or — 8 D. Hereditary cases even as high as — 12 D. or more were often seen without any crescent, and monocular cases often belonged to this class.

MR. EALES agreed in the general views laid down by Mr. Priestley Smith. He found it convenient to classify the cases into two classes—first, those whose power of accommodation was good or excessive; and, secondly, those whose accommodation was feeble. In the former cases he always ordered full correction for all purposes, even in high degrees of myopia, reserving weaker glasses for reading purposes, etc., for the latter only. He attached considerable importance to the presence of exophoria so often seen in myopes, and for these the addition of prisms often gave relief not previously obtained. Another point of great importance was the correct centering of the lenses, especially in higher degrees, and by attention to those conditions much discomfort was frequently avoided.

MR. E. DYKES BOWER said that being a myope himself he was much interested in the discussion. He considered that reading with insufficient light was a most important factor in developing myopia. Nearly all myopes liked and required plenty of light, and the photophobia experienced by emmetropes and hypermetropes was very seldom seen in cases of myopia. He strongly disapproved of myopes indulging in gymnastic exercises which involved holding the head downwards. Among the many circumstances which combined to increase myopia, he looked upon reading with insufficient light and holding the book too close to the eyes, whether using glasses or not, as two of the most important. No doubt in all cases theoretically glasses should be worn habitually, but practically the majority of those whose myopia was less than 3 D. would not require them for near work. To read without glasses in moderate or high degrees of myopia led to its increase, and probably to weakening and wasting of the ciliary muscle. He drew attention to the fact that Mr. Priestley Smith had said nothing about the prognostic significance of *muscæ volitantes*. Were they of evil moment? Was detachment of the retina more frequent in such cases, and did such eyes as had them require special care and attention?

MR. E. E. MADDOX thought that the increase of myopia was due more to fatigue and working under bad conditions than either to accommodation or convergence. The chief evil of convergence was the stooping it generally involved. When patients looked obliquely through their glasses to enable them to see better, the muscular strain involved was bad and the refraction should be carefully corrected. He considered that one great reason for the increase of myopia of high degree was the large area exposed to the liquid pressure proportional to the number of unit areas, which was very great in an eye of abnormally large size.

DR. BRONNER had found fundus changes much more common in women than in men, and this, he thought, was due to menstrual vasomotor disturbances. In men choroidal changes were more common if they had suffered from syphilis. If a myope removed to a more sunny and brighter climate, an increase was very likely to take place, due to retinal congestion.



Monocular myopia was more liable to increase if a correcting glass was not worn, and this spoke in favor of correcting all cases of myopia.

DR. RAYNER BATTEN said that he considered all acquired myopia as liable to progress under any unfavorable circumstance. In addition to the points mentioned by Mr. Priestley Smith, as regards the condition of the fundus, he laid special stress on the distortion and stretching of the retinal vessels as giving the earliest and most certain evidence of the occurrence, position, and progress of a staphyloma, and of the tilting of the optic disc, accompanied by œdema of one side of the disc, as an indication of progressive myopia. He considered that the treatment depended on the cause, and held this was usually due to deficient tone and supporting power in the muscles of the eye. This lack of tone was frequently due to constitutional conditions. He advocated the systematic education of the intraocular and extraocular muscles, and this he considered was best promoted by full correction glasses. He also advised systematic muscular exercises practiced daily, combined sometimes, in the first place, with massage of the face and neck.

MR. TATHAM THOMPSON said that unfortunately in the earliest stages myopia was seldom seen, and frequently not until difficulties at school brought it under notice. He believed that it was of the utmost importance to correct myopes as early and as fully as possible, thus giving every encouragement to the holding of books at a proper distance. Having once developed a habit of holding objects too near the eyes, it should be combated in every possible way.

*Reply.*—MR. PRIESTLEY SMITH, in reply, remarked on the very unanimous opinion expressed by the different speakers. With regard to muscæ, he considered them of no importance if it were the patient only who saw them; but should floating opacities be observable with the ophthalmoscope, then they really indicated a degenerative change. Jewelers, as a rule, used both eyes, and were subject to myopia, but watchmakers, who used only one with a magnifying glass, were not especially liable to develop myopia.

## ABSTRACTS FROM MEDICAL LITERATURE.

BY W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### ADVANCEMENT, FORMS OF OPERATION, AND WHEN INDICATED.

Francis Valk (*Ophthalmic Record*, August) discusses the different operations and describes the one he has found most satisfactory, which he credits to Savage, though he and Savage worked simultaneously in developing it. The operation as he performs it in latent and paretic squint is described as follows:

“After the eye has been properly prepared with a solution of boracic acid and a solution of cocain used, or an anesthetic if necessary, the lids are separated by a speculum and the conjunctiva raised with the forceps over the lower or upper point of the insertion of the tendon. I then make a vertical incision followed by one horizontal, forming an L. This is dissected loose from the underlying tissue and then an opening is made in Tenon’s capsule and the small hook is passed beneath the tendon; as the point of the hook comes out another hook is inserted in an opposite direction and the two hooks forcibly drawn apart, so exposing the tendon and part of the muscle. I now pass the small instrument, called twin strabismus hook, beneath the muscle, and the hooks are allowed to separate by the action of the small spring in the joint, and the two hooks are then removed. We now have the muscle and the tendon fully exposed and ready for the suture. Now, taking a piece of sterilized catgut from the capsule, we thread the needle and pass it first through the lower part of the tendon, then through the muscle, as far backward as we wish to make the ‘tuck,’ passing from within outward. It then goes across the belly of the muscle and is passed through, from without inward and back to the tendon where it passed from within outward, at a point corresponding to the first insertion. As the ends are tied over the tendon at this fixed point we see readily the ‘tuck’ formed as the muscle belly is drawn forward and its long axis shortened.

However, in case of fixed squint, I do a complete tenotomy of the opposing muscle before the suture is tied." The question when this operation is indicated seems to him the most important. He has no confidence in any method of examining that will "take the higher centers off their guard," or destroy the fusion or guiding sensation of the eye, and he uses the tests that destroy it simply as confirmatory. He asks: Do not physiologic conditions show that Nature intended the eye should have power to move the eyeballs more in one direction than others, that the interni should be the most powerful—even independent of the power of convergence—and next, the externi, and in following order the inferior and the superior, the weakest of all? Should we not find, he asks, that the power of adduction is two to four times greater than that of abduction, and the power to turn the eyes downward somewhat greater than that of sursumduction; and, therefore, he fixes his standard as that "in which the power of abduction is more or less one of fixed condition under which the eyes will diverge 6 or 8 prism degrees, so as to fuse or blend the retinal images; and then we expect to find the power of abduction anywhere from 12 to 30 prism degrees without any muscular imbalance. Similarly we find the sursumduction one, two or three degrees in each eye, and the opposing muscle will show deorsumduction of about one degree greater." With this condition of the muscular balance fully confirmed by several tests, he does not think we can have any muscular imbalance, without regard to what the other tests may develop when deprived of the fusion force. In defining noticeable modifications from that standard for his indications for operation, he points out the indications in various conditions—esophoria, exophoria, diplopia, convergent squint, etc. From his past experiences with the operation of advancement and shortening the indications depend upon one of degree, in reference to the change in position of the visual line, the power of the weak muscle, and that of imbalance of the muscle apparatus, as shown by the tropometer and tests of duction of prisms. He considers that advancement is fully required when we have a deviation of the visual line of more than thirty degrees of the arc. He concludes "That shortening is indicated in all cases of squint, if not too great,



(less than thirty degrees,) combined with tenotomy, of the opposing muscle if necessary. That in all cases of imbalance—without any deviation of the visual line—the operation of shortening the weak muscle, thereby improving its power to turn the eye under the stimulation of the fusion force, is the best in my hands, as I have fully proved its application and usefulness. That the operation of shortening is also indicated in cases of paresis and the so-called paresis of divergence, in which we have a latent insufficiency of the muscular power, that frequently becomes manifest when they are about 40 years of age and presbyopia with hyperopia is present. That in all cases of heterophoria or latent squint, either lateral or vertical, the best results will always be obtained by the operation of shortening, without any fear of an over-correction, as long as the guiding sensation of the eye is free to act on the cerebral centers, as the process of healing takes place.”

METASTATIC CHOROIDITIS OCCURRING IN THE COURSE OF  
PNEUMONIA, DUE TO GRIPPE, ETC.

Chas. Stedman Bull (*Medical Record*, Aug. 31) discusses metastatic choroiditis occurring in the course of pneumonia due to grippe, based on a study of six cases with two autopsies. Metastases are assumed to be less frequent in the distribution of the carotid arteries than in the internal organs. As only one-eighth of the blood of the ophthalmic branch goes to the eye-ball, it is not very receptive of compact plugs, capillary embolic being much more common. It has been asserted the occurrence of metastatic ophthalmitis signifies that the general disease is of a particularly severe type. This the author doubts, for if true the ocular trouble would of necessity be regarded of peculiar and unusual importance, and would have a marked prognostic significance. The bilateral appearance of metastatic choroiditis, like all bilateral intraocular lesions, must be regarded as symptoms of a general constitutional disease, and in such cases we should expect to find numerous metastases in other tissues supplied by the carotid arteries. The disease, as presented in the six cases reported, was characterized by pain in the eye and head, intense vascular congestion, with the usual symptoms of irido-choroiditis, and rapid and total loss of vision. The condition may be ushered in by severe headache, vomiting, rise of

temperature, and general febrile symptoms. Intraocular tension is increased at first, but subsequently sinks much below normal. The course of the disease is from three to six weeks, and the prognosis is always bad, the case always ending in blindness and phthisis bulbi. The author does not advise enucleation in the acute stage of suppuration, especially if Tenon's capsule or the orbital tissue is involved.

A CASE OF SYMMETRIC RETINAL DETACHMENT OCCURRING  
DURING LABOR, AND ASSOCIATED WITH  
ALBUMINURIA, RESULTING IN  
COMPLETE RECOVERY.

Reginald G. Haun and R. Lawford Knaggs (*The Lancet*, May 18) report a case, which is one of the causes of blindness during parturition. Retinal detachment during labor generally ends in recovery, while such an accident occurring during an attack of renal disease is usually a prelude to a fatal result.

AN IMPROVED LANTERN FOR DETECTING COLOR BLINDNESS  
TO SUPPLEMENT THE DEFICIENCIES OF THE  
WOOL TESTS.

William Thomson and Archibald G. Thomson (*Philadelphia Medical Journal*, Sept. 21) describe an improved form of lantern which they recommend for use as a supplement to the usual test with Holmgren's wools, the deficiencies of which it supplies. With the new lantern any attempt to dishonestly pass the color test is absolutely impossible.

DISADVANTAGES OF COPPER SULPHATE IN DISEASES OF THE  
CONJUNCTIVA AND CORNEA.

Cornelius Williams (*Medical Record*, Sept. 21) says the objections to sulphate of copper are so great, and its advantages so much less than those of other and safer remedies, that it should be banished from our list. He thinks bichloride of mercury far superior to copper sulphate in all conditions in which the latter drug is indicated. His conclusions are as follows: 1. Copper sulphate in ocular affections is maleficent in its effects. 2. Any good effect following the application of the solid copper sulphate in any disease of the eye may be obtained with the use of safer and practically painless means. 3. Trachoma is most successfully treated with weak solutions of silver nitrate, together with frequent

irrigation with weak bichloride solution in normal salt. 4. No application to an inflamed conjunctiva which produces a lasting pain should be countenanced. 5. Expression is not absolutely essential, yet much hastens the cure of trachoma. 6. A mydriatic should be used in every disease of the eye involving corneal lesions. 7. Copper has ruined more eyes than it has ever benefitted.

BIFOCAL LENSES; WHAT AREA SHALL BE DEVOTED TO THE SHORTER FOCUS?

John E. Weeks (*Medical Record*, Aug. 24) gets the best results with the small oval "plaster," placed on the distance lens so that it will give sufficient field area at the reading distance, and will also permit of distant vision almost, if not entirely, around it. The "plaster" should be oval, 10 mm. in its vertical, and 15 mm. in its horizontal diameter. If the disc is placed two mm. above the lower edge of the distance lens it will permit of sufficiently clear vision below to enable the wearer to see the curb, descend stairs, etc., without trouble. The dispersion rays of light occasioned by the edge of the "plaster" can be minimized by making the edge very thin.

A CASE OF AMBLYOPIA DUE TO EXCESSIVE TEA DRINKING.

E. W. Henry (*Ophthalmic Review*) reports the case of a man, aged 57, who used no tobacco, drank very little, but indulged freely in excessively strong tea. He complained of dazzling and mistiness, and his vision was reduced nearly one-third. Under treatment, and discontinuing the tea, his symptoms disappeared and vision in three months became normal.

TREATMENT OF THE APPARENTLY UNAFFECTED, OR AT MOST BUT SLIGHTLY INVOLVED EYE, IN CASES OF GLAUCOMA.

G. E. DeSchweinitz (*Phila. Med. Journal*, Sept. 21) recommends keeping the non-affected eye under the influence of a myotic until the other eye is entirely healed and free from irritation. In cases of acute glaucoma the apparently unaffected eye should be operated on as soon as the anterior chamber is restored in the other eye, if indications show that it is likely to suffer a glaucomatous attack like its fellow. Especially does the author recommend this procedure when



the patient is likely to pass from under observation. In chronic congestive glaucoma the same advice applies, and the operation should be urged if the apparently unaffected eye has had attacks of nebulous vision associated with increased tension. In chronic simple glaucoma if any increased tension whatever is shown an operation should be performed, even with perfect central and peripheral vision. In absolute glaucoma the rules laid down for the acute variety are applicable.

ON THE FREQUENCY OF ASTHENOPIA, ESPECIALLY  
IN AMERICA.

Lucien Howe (*Buffalo Medical Journal*, Sept.) thinks asthenopia is much more frequent in this country than in Europe. This he attributes to the prevalent carelessness in the use of the eyes, the strenuous life we lead, indigestion, etc. He also finds that these cases are more successfully treated in this country than abroad. The average American physician is better fitted to detect and meet the conditions and American ophthalmologists are better supplied with diagnostic appliances for such cases. (They appreciate more thoroughly the necessity of carefully correcting small errors of refraction, and attach much more importance to heterophoria in this class of cases than do foreign ophthalmologists.)

ALBUMINURIC RETINITIS AND URÆMIC AMAUROSIS, WITH  
ESPECIAL REFERENCE TO THEIR OCCURRENCE  
DURING PREGNANCY.

Edmund D. Clap (*Boston Medical and Surgical Journal*, July 11) finds these troubles rare in pregnancy, but very important when they do occur. The prognosis of albuminuric retinitis, as to sight, is favorable for the first attack if it occurs after the sixth month, but less and less so for each succeeding attack. Prognosis for sight is bad if it occurs before the sixth month. When it occurs early in the pregnancy, abortion should be considered if the retinitis is at all severe, especially if hemorrhagic, or if a slight retinitis is progressive in spite of treatment. When retinitis develops after the sixth month it is best to wait, especially in first attack, and not induce labor unless some other symptom demands it.

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## ORIGINAL ARTICLES.

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### AN ENORMOUS CICATRICIAL CYST.

History by HENRY DICKSON BRUNS, M D., New Orleans.

Microscopical Examination and Description by ADOLF ALT, M.D.

THE most interesting specimen, which I owe to the kindness of Dr. Henry Dickson Bruns of New Orleans, and which is to be described in detail in the following, was accompanied by this report:

“C. F. T., a white clerk, aged 22, came to our office on February 16, 1901.

He said that his right eye had been operated on for cataract with iridectomy in October, 1897. In May, 1900, after he had felt pain in the right eye for three or four days, he noticed a swelling at the site of the incision. He has been suffering ever since. The pain was sometimes continuous for three or four days at a time, and at times both eyes hurt him severely.

“On the examination there is found considerable ciliary injection, a marked cystoid cicatrix and ciliary staphyloma. V=0.

“On February 17, 1901, the eye was enucleated in chloroform anæsthesia. No accident. The eye was placed in a 10 per cent. formol solution.

“February 18th. Doing well. Bandage removed. Borax wash frequently used.

“February 21st. Patient returns to his home in the country. All pain and discomfort have disappeared.

“March 2d. A vertical section through the eyeball, passing through the cyst, shows that there is no real staphyloma. It



FIG. 1.

is a pure cystoid cicatrix, with the stump of the iris adherent to it.”

The macroscopical inspection of the half of the eye which I received showed a really enormous cyst. In the hardened specimen its longest diameter, lying backwards on the sclerotic, was 9 mllm.; its elevation from the sclerotic was 5 mllm. Undoubtedly in life these measures, especially the latter one, were decidedly greater. (See Figs. 1 and 2.)

The outer cyst wall begins in the cornea. The gap between cornea and corneo-scleral tissue is 1 mllm. wide. In



the portion of eyeball which I have examined no adhesion of the iris stump is visible, although this may have been visible in the half which Dr. Bruns retained.

Microscopically it is seen that the cystic formation begins with the corneal tissue well forward of the corneo-scleral juncture—that is, the incision was made well within the clear cornea, and the outer lamellæ are bulged outwards. From here on backwards the outer wall of the cyst consists



FIG. 2.

Shows cyst, as it appears several millimeters inwards from corneal incision.

chiefly of condensed conjunctival tissue, covered by a small amount of more loose conjunctiva. At the apex of the cyst this outer wall joins the inner wall, which is formed of sclerotic and cornea. (See Fig. 3.) The latter tissue is especially recognized by its layer of Descemet's endothelium. The tissues surrounding the cyst, especially at its apex, show small round cell infiltration. Through the gap the cyst communicates directly with the anterior chamber.

There is no tissue adherent to the anterior lip of the gap. To the posterior lip in some of my sections a piece of wrinkled

lens capsule is agglutinated and folded outwards into the cyst, and there lost in the inner cyst wall.

The whole inside of the cyst is lined with endothelium, or flat epithelium. This lining is not, however, equal in thickness all over. (See Fig. 3.) While in some parts there are only two or three superimposed layers, in other parts eight or more layers can be counted. (See Fig. 4.)

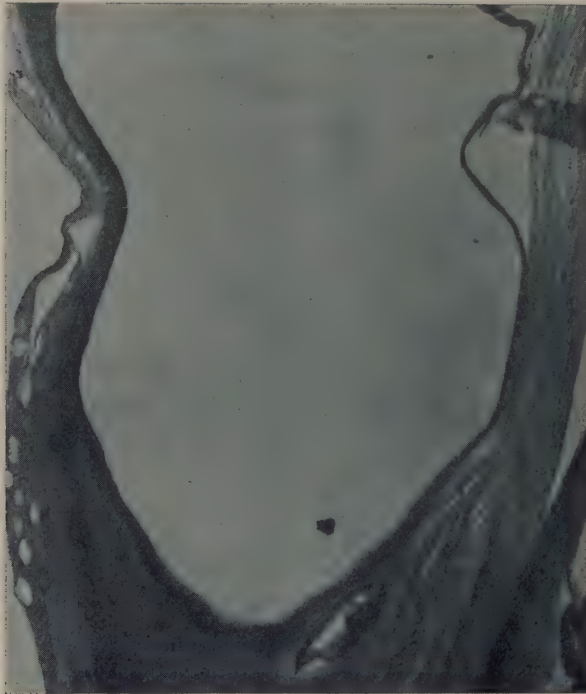


FIG. 3.

In front this lining of the cyst walls continues to a certain distance forward on Descemet's membrane; thus hiding the cells of the endothelial layer of this membrane. Where Descemet's endothelium is visible it shows throughout the condition of stellate retraction of the cell body which I have described as "unrest."

On the posterior lip of the gap the lining of the cyst is continuous with the cell layer covering the wrinkled lens capsule, which may be anterior lens epithelium.

From this condition it is difficult to say what is the origin

of the cells lining the cyst. Are they endothelial and derived from Descemet's endothelium, or epithelial and grown from the anterior epithelial cells of the lens? The fact that their cell body stains more deeply than that of Descemet's endothelial cells, and more like epithelial cells in general, may perhaps be taken as proof that these cells owe their origin to



FIG. 4.

the proliferation of the cells of the anterior lens epithelium. On the other hand, it is not at all impossible that these cells lining the cyst sprang originally from the exterior epithelium covering the cornea and conjunctiva.

Nowhere in my specimens do I find an attachment of the iris stump to the cyst wall, nor to the edges of the opening into the anterior chamber. Inside of the scleral lip of the gap lies the atrophic ciliary body, with remnants of lens capsule and lens substance attached to it. There is also a total



blocking of the iris angle in the parts not directly concerned in the operative area, as we find it in glaucoma. What is left of the contents of the cyst are innumerable red blood cells, attached to the cell lining. Red blood cells also adhere to Descemet's endothelium, and are found in clusters in the vitreous body.

From the foregoing it is probably clear why I prefer to call this a case of *cicatricial cyst* instead of calling it a cystoid scar.

The only case of a real cystoid scar with attachment of the iris, which seems to have been nearly as large as the one under consideration, I find in *E. T. Collins' Researches into the Anatomy and Pathology of the Eye*, on Plate VII., Fig. C.

He says: "I have examined several cystoid cicatrices, and find they are always lined by more or less atrophied iris tissue," and then describes the common manner in which a prolapsed iris not only keeps the wound lips from uniting, but also becomes stretched by the intraocular tension so as to form what is called a cystoid scar.

In the case under consideration here the conditions are, however, different. The open gap between the corneal and corneo-scleral tissue was evidently at no time bridged over from within—not even by iris tissue. The lips of the incision wound were evidently held apart by the interposition of some portion of the anterior lens capsule, and thus the closure of the gap was prevented. In consequence, after the conjunctival wound was healed, this membrane was bulged out by the free access of the aqueous humor, and as the intraocular tension increased, the fluids from the interior of the eye burrowed farther and farther back under the conjunctiva, thus causing the formation of a true cyst, which, however, remained throughout in direct communication with the interior of the eyeball.

I have, like Collins, examined quite a number of cystoid scars, but in no case found the conditions to be like they are in this case.

ON THE COMPARATIVE VALUE OF THE VARIOUS  
PREPARATIONS OF SILVER IN  
OPHTHALMIC WORK.

By GUSTAVUS HARTRIDGE, F.R.C.S.,

Senior Surgeon, Royal Westminster Ophthalmic Hospital; Ophthalmic Surgeon and  
Lecturer on Ophthalmology, Westminster Hospital.

I WOULD first offer some apology to the members of this Section for the introduction of a paper dealing with therapeutics. I am aware that such a paper cannot be very interesting, because the use of most drugs is surrounded by so many difficulties and fallacies that unless each remedy is applied by one's own hands it is easy to be misled with regard to results, however careful one may be to keep an open mind on the subject. Then in applying remedies to the eye one must bear in mind that many drugs, especially those of an irritating character, produce an almost instant flow of tears, which dilutes the remedy at once, and must very much reduce its action. Still, the object of all our knowledge—bacteriological, pathological, and clinical—is really the treatment and relief of patients, an object which at times we are apt to lose sight of. A distinguished foreigner once said to me, after looking at a number of fundus cases in which we had been discussing the fine changes in the retinal vessels, “Yes, the diagnosis and the prognosis it is wonderful; but the treatment ————” The reproof contained in these words has often been brought home to me. It will be admitted on all hands that within the past few years great progress has been made in the study of diseases of the eye and the accurate correction of its optical defects and muscular disturbances. Can we say that a corresponding advancement has been made in the treatment by drugs?

It is chiefly in diseases of the conjunctiva and lacrymal apparatus that the salts of silver have been found useful.

Inflammation of the conjunctiva is among the commonest of eye affections, but it is only recently that attention has been paid to the different micro-organisms met with in the conjunctival sac, and the importance of the part they play in the various forms of inflammation of this mucous membrane fully recognized.

Neisser was the first to draw attention to the presence of the gonococcus in purulent conjunctivitis, and to establish

the fact that the virulence of this disease is due to the presence of this particular organism. After this Weeks described a specific bacillus found in cases of acute contagious conjunctivitis, and more recently Morax has discovered a diplobacillus in the secretions from cases of subacute conjunctivitis. In diphtherial conjunctivitis the bacillus of Loeffler is to be found, and trachoma is known to be due to the trachoma coccus. No doubt we shall soon have a scientific classification of the varieties of conjunctivitis based on their bacteriological characters.

It is well known that for the treatment of conjunctivitis we possess no specific, and we could hardly expect to have one when we consider the cause, symptoms, and pathological changes that take place in inflammation of a mucous membrane; hence almost every antiseptic and astringent in the *Pharmacopœia* has been tried at different times. The remedies now most frequently employed are boracic acid, sulphate of zinc, chloride of zinc, sulphate of copper, alum, tannic acid, borax and nitrate of silver.

For many years past the one drug on which reliance has been placed in all severe cases of purulent ophthalmia is nitrate of silver, and for this purpose it has proved invaluable. The efficacy of the drug depends probably chiefly upon its germicidal qualities, supplemented by its powerful astringent effects upon the vessels of the conjunctiva. The germicidal action is due to the base silver.

The employment of nitrate of silver requires great care and experience, and its use is accompanied by certain disadvantages and limitations, which may be summed up as follows:

1. Great pain and irritation.
2. Strong caustic effect.
3. Long-continued use may produce permanent staining of the conjunctiva.
4. The action of the drug is superficial, owing to the ready manner in which it is precipitated by albumen and chlorides.

When a solution of nitrate of silver is used to the conjunctiva it should be very lightly applied to the surface of the everted lids, and should not be allowed to come in contact with the cornea. Hence the drug is only safe in skilled hands.



When the conjunctival surfaces of the lids are brushed over with a 2 per cent. solution of this salt, a delicate bluish pellicle forms, which is in reality a very superficial slough, and is accompanied by an increase in the inflammatory symptoms. This in an hour or two commences to subside, the slough separates gradually, and the condition is one of improvement. After about twenty-four hours the inflammatory symptoms again show signs of increase, and then a second application may be called for. Great experience is required to know exactly when the remedy should be reapplied, and I have often found it difficult to decide this point.

The pain produced by the drug is acute, and may last for some hours even when cocaine is used. The pain is generally less and lasts a shorter time when there is a profuse purulent secretion; the silver then becomes quickly converted into albuminate of silver, a salt which is unirritating. This chemical change in the drug limits its action, and prevents it penetrating deeply into the tissue, and thus many organisms escape destruction.

The caustic effects of the drug may cause sloughing of the epithelial layer of the conjunctiva, and sometimes even of the deeper layers, and so produce permanent cicatrices.

Solutions of nitrate of silver continued for any length of time may produce permanent staining of the conjunctiva. This staining, which is called argyria, is most disfiguring, and is caused by the deposit of minute granules of silver in the lymphatic and perilymphatic structures.

On account of these drawbacks, efforts have been made to introduce some salt or compound of silver which may be as efficacious as the nitrate, while free from its disadvantages.

The following compounds have been supplied to us by the manufacturing chemist: Actol, itrol, argonine, argentamine, nargol, largin, and protargol.

I do not propose to weary you by the enumeration of a large number of cases, but intend to briefly sum up the results as they appear to me, in the hope that other members may be induced to state their opinion of a class of remedies, some of which should certainly retain a place among the drugs at our disposal. Nowadays we are flooded with so many new drugs that the tendency is to become over-skeptical, with the result that we may easily miss remedies that are of real value.

Actol, argentum lactas,  $\text{AgC}_3\text{H}_5\text{O}_3$ , is soluble in water, 1 in 15. When a little of this solution is applied to the conjunctiva a good deal of irritation is produced, almost as much as a drop of a 5 per cent. solution of nitrate of silver; actol possesses no advantages for ophthalmic work. It has been used extensively in surgery or dentistry:

Itrol, or argentum citras,  $\text{Ag}_1\text{C}_6\text{H}_5\text{O}_7$ , is a white, odorless non-caustic powder possessing powerful germicidal properties; it is soluble only with difficulty in water 1 in 4,000, but it may be used as a powder directly to the conjunctiva. The results I have obtained in a few cases in which I have tried it lead me to think that it is an excellent antiseptic with considerable penetrating power. It has been used chiefly in suppurative conditions of the conjunctiva, the cornea, and the lacrymal apparatus.

Argonine, or argentum casein, contains 4 per cent. of silver, readily soluble in warm or albuminous water, but with difficulty in cold water. Solutions are opalescent, and must be freshly prepared, as they do not keep well. I have found this preparation inferior to both protargol and largin.

Argentamine contains 2.6 per cent. of silver; it has been used in a large number of cases by Hoor, who has made extensive trials with 5 per cent. solutions; he speaks very highly of this drug, and considers it very penetrating in character, while producing but little irritation. It has the disadvantage of containing a very small amount of silver.

Nargol is a chemical compound of silver and nucleic acid, containing 10 per cent of silver; it is readily soluble in water, very stable, and is said to possess most of the properties of protargol; it may be used in 5 or 10 per cent. solution. Nargol is supplied as a light brown powder, forming in solution a brown fluid, which gradually becomes darker on exposure to light. Solutions of the drug cause no pain when introduced into the conjunctival sac, and it is pleasanter to use and less sticky than protargol. In acute contagious ophthalmia I have used 10 per cent. solutions, and have found them efficacious, cutting short the attack and leading to a rapid cure. It also acts well in suppurative conditions of the lacrymal sac. With regard to purulent ophthalmia my experience of the drug is not sufficient to justify me in forming an opinion. The remedy certainly seems worthy of further trial.

Largin is a synthetical compound containing 11.8 per cent. of silver combined with protalbin. It is soluble in water 1 in 10, forming a yellowish fluid, which becomes very frothy on shaking. The preparation is more stable than the nitrate of silver, and is not precipitated by albumen and chlorides. It should be protected from the light and must be freshly prepared, as it tends to become thick and sticky if kept for a few weeks. Its chief claim is that it contains a larger amount of silver than any of the other synthetical preparations. If a drop of a saturated solution be instilled into the conjunctival sac, it produces slight pain and irritation which soon pass off. In purulent ophthalmia I have found the drug somewhat uncertain. In a few cases it seemed to have a very marked effect in cutting short the attack and controlling the inflammation; in others the results have been disappointing, and I have arrived at the conclusion that in this disease it is distinctly inferior to protargol. In acute contagious conjunctivitis due to the Weeks bacillus the drug acts very well, cutting short the attack, and leading rapidly to complete recovery. In chronic conjunctivitis the remedy seems to have but little effect, and is certainly inferior to the zinc salts and alum. In trachoma the drug has a distinct beneficial effect in diminishing the amount of secretion and shortening the acute attacks; it may also be usefully employed after the operation of squeezing out the granulation with the roller forceps; in lacrymal cases, where there is regurgitation of pus or muco-pus from the lacrymal sac. After the canaliculus has been slit up, the sac and nasal duct may be syringed out with a 10 per cent. solution. I have had better results in these troublesome cases with this than with any other drug, and for its good effects in these cases alone the remedy is worthy of a permanent place among our list of remedies. It has been claimed for largin that it does not stain the conjunctiva, but this is certainly wrong. I agree with Stephenson that staining easily takes place, and on this account it is unwise to continue the use of this drug longer than two or three weeks at a time.

Protargol is a combination of silver with a vegetable albumen, not in the form of a metallic salt, but as a molecular compound. It contains 8.3 per cent. of silver and is not decomposed by albumen, alkalies, or weak hydrochloric acid; it is very soluble in hot or cold water, but requires protecting



from the light and should be freshly prepared, otherwise it is sticky to use and becomes very dark-colored. Experiments have proved that protargol is a weaker germicide than nitrate of silver. A 10 per cent. solution of protargol equals in its germicidal effects a 2 per cent. solution of nitrate of silver, but it has a much greater penetrating power and can therefore exert its germicidal qualities longer than the nitrate of silver, the action of which soon becomes stopped by the decomposition that takes place. Protargol is pleasant to use, has no caustic action, and causes little or no pain; it may be applied either as drops or brushed over the mucous membrane by means of a camel's hair brush or a cotton wool swab. When I first commenced the use of protargol I began with solutions of 2, 5, and 10 per cent., but I soon found that much better results were obtained with 10, 20, and 30 per cent. solutions; now in cases of purulent conjunctivitis I swab over the conjunctiva twice in twenty-four hours with a 30 per cent. solution, and even when the cornea is implicated this is no contraindication, the secretion quickly diminishes, the swelling of the lids goes down, and the case rapidly gets well. The good effects appear to be due to the double effect of the drug, first and foremost the germicidal action penetrating deeply into the tissue and so exerting its destructive influence on many of the bacilli which would otherwise escape; and secondly its astringent effect upon the conjunctival vessels. In acute contagious epidemic conjunctivitis due to the Weeks bacillus—an affection that was very prevalent last spring—I have found the drug give excellent results, curing the cases quickly. In trachoma, when the drug has been used in strong solution (50 per cent.), the secretion is soon diminished and the duration of the case shortened. In chronic conjunctivitis and blepharitis the drug in my hands has proved inferior to the zinc salts and mercurial ointment commonly used. In suppurative affections of the lacrymal apparatus the drug is especially useful after the canaliculus has been slit up. The sac and nasal duct may be syringed out first with a 5 per cent. solution of protargol, and if this is well borne the strength of the solution should be increased to 10 per cent. I have also used the drug in a few cases of abscess and infected ulcers of the cornea, but I have always found this treatment much less efficacious and more uncertain than the electric cautery.

# MEDICAL SOCIETIES.

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## PROCEEDINGS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.\*

*Friday, November 8, 1901.*

DAVID LITTLE, F.R.C.S.E., M.D., President, in the Chair.

### CHRONIC SERPIGINOUS ULCER OF THE CORNEA (MOOREN'S ULCER).

MR. NETTLESHIP read this paper. He said: The terms "chronic serpiginous ulcer," or "Mooren's ulcer," are preferable to "ulcus rodens," which is another name for rodent epithelioma. The paper is based upon an examination of 71 cases, 12 of which are his own. Bowman was the first to describe a case in detail (1849), but Mooren rightly has the credit of discovering the disease as a clinically distinct species in 1867. The ordinary character and course of the disease are described. Its usual duration is from four to twelve months, and no cases are included that lasted less than two months, though certain cases running a less chronic course may perhaps be of the same nature. The subjects are adults from 23 to 71; rather less than a quarter were under 40, just half between 40 and 60, rather more than a quarter over 60. A decided majority were males. In a large majority the attack in both sexes begins in the winter half of the year, and degenerative changes, perhaps merely senile, lowered surface temperature, and perhaps some congenital defect of quality of the corneal tissue in certain persons are suggested as predisposing causes. The course of the disease strongly suggests infection, but no special micro-organism has as yet been found. In more than one-fourth of the cases both eyes suffer, sometimes with an interval of years, and the disease is often exactly symmetrical in the two eyes. The prognosis is always grave, and is far worse when both eyes are attacked, only one in four of the double cases being arrested short of

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\*British Medical Journal.

total leucoma; whilst of the single cases more than half recover with some untouched cornea. The deeper parts of the eye remain healthy, and vision is determined by the final state of the cornea and pupil. Treatment should begin with cutting away the overhanging and half dead edge of the ulcer, and applying an escharotic or strong germicide to the advancing border thus exposed; the galvano-cautery is the best, pure carbolic acid and strong tincture of iodine probably come next; transplantation of conjunctiva over the ulcer appears useful occasionally. Though some cases are published as cured which would probably relapse, and though others go to universal leucoma in spite of all possible treatment, the results have been much better since the introduction of the cautery than before. Several old patients have done well, and several young ones very badly. Allusion is made to the "marginal atrophy" of the cornea recently described by Fuchs and to several other allied conditions of the cornea.

MR. TREACHER COLLINS asked if there was any relation between the age of the patient and the rate of progress of the disease. In two cases he had seen the ulceration of the cornea was most extensive, and yet the remaining opacity was not dense, and remarkably good vision remained. In one case the patient developed a crop of vesicles on the cornea and some patches of infiltration, all of which cleared up upon his doing paracentesis and iridectomy.

MR. LAWFORD related the case of a woman, aged 69, with no very definite specific history. In the right eye more than half the cornea was attacked; there was severe iritis but not much pain, and the temperature was normal. He cauterized the advancing edge, and after a second application it healed. Shortly afterwards it broke out again, and he then applied nitric acid without much good resulting. He then used liq. iod. daily, but it caused pain and did not do much good. Then the left eye became congested. An ulcer developed, which he burnt with the cautery. The right eye had no un-attacked cornea, and it was vascular and cicatrized. The left was again cauterized, and strong perchloride of mercury applied. After freely cutting away the edge and applying the galvano-cautery, it healed, but again broke down and was cauterized. This was repeated, and the patient still remained



under treatment. In another case, that of a man aged 46, healing was obtained after one application of the galvano-cautery.

MR. LANG, on one occasion after failure with the cautery, did an iridectomy, when the ulcer healed and the case did well. Since then he had treated others in the same way with good results, in all but one case.

MR. BRONNER thought that there were two distinct classes of cases, one in which the ulceration was superficial and one in which it was deep.

MR. SYDNEY STEPHENSON had published a case which occurred in a lady, aged 60, where the ulcer healed after two applications of the cautery. He then looked upon it as malignant, but this view he did not now hold. This disease seemed to occur about once in 17,000 cases, though more appeared to occur in some countries than in others. He thought the term "Mooren's ulcer" was a better term than serpiginous. Gifford had published a case in which the conjunctiva and sclera were involved in the ulcerative process, and last year an Italian observer isolated a bacillus which caused a disease when inoculated into the conjunctiva of rabbits.

THE PRESIDENT stated that he had only seen a few cases, and he described one which occurred in a lady in which he advised an iridectomy, as it had when he first saw it resisted all kinds of treatment. The patient refused to have the operation done, and he subsequently transplanted a corneal flap with good result. The disease followed influenza.

MR. BICKERTON asked if there was evidence of dacryocystitis in Mr. Nettleship's cases.

MR. NETTLESHIP replied that lacrymal sac trouble was very uncommon in these cases. With regard to age and prognosis he had not worked it out, but he did not think that there was anything striking in this respect. He had never noticed vesicles on the cornea, neither had he found that the inhabitants of some countries were more liable to the disease than others. The cases cited by Mr. Lawford and the President certainly made the prognosis look bad, but he was sure that it was much better since the introduction of the cautery.

## KERATITIS IN THE NEWBORN.

DR. W. ERNEST THOMSON (Glasgow) read a paper on keratitis in the newborn, occurring after instrumental delivery, and resulting in each case in an almost identical rare form of opacity. All the mothers had contracted pelves, and in one with a conjugate of only  $2\frac{3}{4}$  inches the delivery had been extremely difficult. Dr. Thomson saw two of these children very soon after birth, at which time three corneæ out of the four presented opacities in the anterior layers, with dulling of the surface but no vascularity. There was in all some bruising of the lids and conjunctivæ. The subsequent result was peculiar, for while one cornea became progressively more infiltrated, and that uniformly, the other two quickly improved; but the opacities, instead of remaining as central nebulae, developed into a white vertical linear scar with an adjacent area of much fainter haze. The third case had come under the care of Dr. Andrew Wilson at the fifth week. All signs of active keratitis had passed away, but an obliquely-placed linear scar remained precisely similar in character to those in the other children. Dr. Wilson suggested that the cornea became buckled by the pressure of the forceps squeezing the eye against the nasal wall of the orbit. Dr. Thomson pointed out that such cases if seen late might be diagnosed as congenital corneal opacity of intrauterine origin.

## CARD SPECIMENS.

The following were shown: Mr. A. Hugh Thompson: Sections of an orbital tumor (? endothelioma, ? adeno-sarcoma).—Mr. Doyme: Tumor growing apparently from the optic disc.—Mr. Adams Frost: Some eye instruments used by native oculists in India, which had been presented to the Society by Major Drake-Brockman.—Mr. Maclehose: Rodent ulcer of upper eyelid.

DISCUSSION ON THE RELATION OF GONORRHOEA  
TO DISEASE OF THE EYE (EXCLUDING PURU-  
LENT OPTHALMIA), IN THE OPHTHALMIC  
SECTION AT THE MEETING OF THE  
BRITISH MEDICAL ASSOCIATION  
AT CHELTENHAM.\*

MR. LAWFORD said: The relation of gonorrhœa to disease of the eye is a theme which, in at least one respect, encourages discussion. It is a subject concerning which our knowledge, or I should perhaps say our accurate knowledge, is contained within somewhat narrow limits, and therefore any means likely to add to our store of information should be welcome. This limitation of knowledge has also certain disadvantages, for the less we know concerning any subject the greater the temptation to theorize and to advance hypotheses which can be neither proved or disproved, and discussion of which is usually without profit.

The main question before us, as I understand it, has reference to the causal relationship which exists or is believed to exist between gonorrhœa and various pathological conditions of the eye.

To prevent misconception, I would definitely give notice that gonorrhœal ophthalmia is to be entirely omitted from the discussion.

I propose in the first instance, and as introductory to the strictly ocular part of our subject, to make a few remarks upon some of the more general pathological relationships of gonorrhœa.

The seriousness of gonorrhœal infection is now universally acknowledged, and due importance is attached to the recognition of lesions in any part of the human economy induced by such infection. It is, however, not very many years since Sir John Simon first drew attention to the now accepted fact that the sequelæ of gonorrhœa are in their results almost as baneful as those of syphilis. A more recent and perhaps not less authoritative statement has been made by Professor Osler in these words: "Gonorrhœa is one of the most widespread of infectious diseases . . . As a cause of ill-health and

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\*British Medical Journal.



disability the gonococcus occupies a position of the very first rank among its fellows. While the local lesion is too often thought to be trifling, in its singular obstinacy, in the possibility of permanent sexual damage to the individual, and still more in the 'grisly troop' which may follow in its train, gonorrhœal infection does not fall far short of syphilis in importance."

The discovery by Neisser, in 1879, of the specific micro-organism, designated the gonococcus, necessarily led to the abandonment of many pre-existing ideas concerning gonorrhœa and its complications. Some commonly accepted theories became untenable, and it seemed at first as if the microbic nature of the disease offered an easy explanation of all manifestations. Such is not the case, however, and it is nearly as difficult now to adequately explain some of the remote symptoms of gonorrhœa as it was before Neisser's meritorious discovery.

That the gonococcus is, so far as the genito-urinary tract is concerned, the active agent in the production of the usual lesions of gonorrhœa is an established fact. Its rôle in reference to gonorrhœal systemic infection, and the distal or so-called metastatic manifestations of gonorrhœa, has been less fully determined and is more difficult to define.

In a certain number of such cases (that is, systemic infection) the presence of the micro-organisms has been demonstrated in the blood, in the fluid within joints, in exudation around joints, in the endocardium and other tissues. In other cases examination of the fluid from inflamed joints has entirely failed to detect the gonococcus, and in others again there has been evidence of a mixed infection shown by the presence of staphylococci and streptococci. I am not aware that the gonococcus has ever been detected within the eyeball, except in cases of gonorrhœal ophthalmia in which perforation of the globe has occurred.

One of the most frequent manifestations of general infection in cases of gonorrhœa is arthritis. According to Warren it occurs in 2 to 3 per cent. of all cases.

The association of joint disease and gonorrhœa is said to have been first described by Selle and Swediaur in 1781. Brodie in 1818 and Astley Cooper in 1824 wrote upon this

subject, and drew attention to the occurrence of iritis in patients suffering from urethritis and inflamed joints. The latter writer reported the case of a man under his care, in whom arthritis and iritis occurred during an attack of gonorrhœa. This patient gave a history of two previous attacks of gonorrhœa during each of which he had suffered from inflamed joints and inflamed eyes.

The frequency of arthritis in patients suffering from gonorrhœa, and the resemblance of this joint affection to ordinary articular rheumatism (evidenced by the commonly-applied term "gonorrhœal rheumatism") has given rise not unnaturally to the supposition that the joint disease stands in some intimate and perhaps causal relation to other less common lesions—for example, iritis and endocarditis.

A more logical view, and one which gains greater acceptance, is that the *materies morbi*, whatever its nature, attacks these various structures independently, and that the simultaneous occurrence of arthritis and endocarditis, or of arthritis and iritis, is in a sense accidental; in other words, that the association is not a necessary one.

The gonorrhœal poison, like that of most infectious diseases, has certain seats of election in the tissues, and it is in no way surprising that evidences of the existence and activity of the poison should appear in several such tissues at or about the same time.

Fournier quotes the case of a man who had four attacks of gonorrhœa in five years. The first was complicated by ocular lesions only; the second and third by ocular and articular inflammation, and the fourth by arthritis alone.

It would, I think, be of little service to us at the present time to enter into any discussion as to the exact nature of gonorrhœal systemic infection. The question is complex and difficult, and for adequate treatment requires an intimate acquaintance with bacteriology and pathological chemistry. Considerable difference of opinion exists among writers on the subject, some maintaining that it is a pure gonococcus infection, others that it is a mixed infection by gonococci and pyogenic micro-organisms, and others again that it is a toxæmia induced by the poisonous products of the gonococcus, manufactured in the tissues primarily attacked.

The ocular affections which are known to occur in association with gonorrhœa (exclusive of the conjunctivitis due to direct inoculation by the gonococcus) are a form of conjunctival inflammation, scleritis and episcleritis, iritis and iridocyclitis, neuro-retinitis. Suppurative keratitis has been described in cases of severe pyæmic character. Iritis is probably the best known of these, although conjunctivitis is said to occur with greater frequency.

Like all the remote manifestations of gonorrhœa, the above-mentioned lesions are much more common in the male sex. The frequency of ocular lesions in gonorrhœa is difficult to gauge; there are but few statistics to guide us. Fournier met with ocular troubles 15 times in 39 cases.

Metastatic conjunctivitis is the term usually employed to designate an inflammation of the conjunctiva occurring in association with gonorrhœa, but which differs markedly in its characters from true blennorrhœa of the conjunctiva. The history of the views entertained by medical men as to the nature of this affection is of interest, and well demonstrates how the progress of knowledge compels thinking minds to alter, or be prepared to alter, their beliefs.

Older observers considered all distant symptoms occurring in the subjects of gonorrhœa as metastases. Their successors, about the time of Mackenzie, while still accepting dubiously the theory of metastasis, recognized two varieties of conjunctivitis in gonorrhœa, one undoubtedly due to inoculation, the other and milder form of less certain origin. The discovery of the gonococcus caused the pendulum of medical thought to swing, and all instances of conjunctivitis were ascribed to direct inoculation.

More recent investigations seem to show that comparatively mild attacks of conjunctival inflammation occur during gonorrhœa which are not due to direct inoculation of the conjunctiva, the micro-organism of gonorrhœa being absent from the conjunctival tissue and discharge. I am inclined to think that there is sufficient evidence to show that such a variety of conjunctivitis does occur, but we shall do well to exercise caution in accepting such evidence as conclusive. There is no reason to doubt that mild attacks of conjunctivitis can be excited by inoculation with the gonorrhœal poison which from



various circumstances has become attenuated. Bacteriological examination is essential before making a diagnosis.

There are points of practical value in distinguishing between the two varieties of conjunctivitis in reference to prognosis and treatment, which I need not discuss at this time. Whether the retention of the term "metastatic" as applied to this form of conjunctivitis is desirable, and whether—excluding direct inoculation—we can suggest a reasonable explanation of the inflammation, are questions which must also be passed by at present.

The association of iritis and irido-cyclitis with gonorrhœa is a common one, and has been recognized for many years. For much valuable information on this subject we are indebted to Förster's able article in the first edition of the *Graefe-Saemisch Handbuch*. There is no reasonable ground for doubt that the iritis is a manifestation of systemic gonorrhœal infection. The recurrence of iritis in successive attacks of gonorrhœa, and its frequent occurrence simultaneously with other well-known gonorrhœal complications, such as arthritis, furnish sufficient evidence on this point.

Gonorrhœal iritis, in the large majority of cases, occurs concomitantly with arthritis. There seems no doubt, however, that its onset may precede that of joint inflammation, or that iritis may be present in cases in which there are no arthritic complications. Fournier states that in a series of cases observed by him the joints and the eyes were not usually affected simultaneously.

These two manifestations of gonorrhœa not only occur concomitantly in many instances, but also possess certain characteristics in common. They are both prone to relapse, and they leave behind them an apparent vulnerability of tissues which may and often does persist for a very long period. An eye which has been attacked by gonorrhœal iritis and a knee-joint which has been the seat of gonorrhœal arthritis are liable to recurrences of inflammation without any fresh gonorrhœal infection. This liability may last for years.

It has been suggested that gonorrhœa may be the cause of iritis developing for the first time long after all local and general signs of gonorrhœa have disappeared.

I have not found sufficient evidence to enable me to form

a definite opinion on this question. I am at present very skeptical whether it is justifiable or indeed reasonable to consider a long antecedent gonorrhœa as the cause of an attack of iritis in an eye not previously affected.

Scleritis and episcleritis of gonorrhœal origin, or at least associated with gonorrhœa, are much less common than iritis. Like the latter they are usually met with in patients with joint inflammations, and share the clinical features of iritis so far as intractability and liability to relapse are concerned.

Among the less common eye affections attributed to the poison of gonorrhœa are retinitis, apparently of thrombotic character, and neuro-retinitis. Galezowski has suggested that the cases of retinitis are instances of thrombosis of retinal arteries due to an obliterating endarteritis, set up by accumulation of gonococci in the vessels.

A few cases of neuro-retinitis following or complicating gonorrhœa have been recorded. Recovery ensued, but in one instance a recrudescence of the gonorrhœa was accompanied by a relapse of the retinitis. These cases are so few in number that it would be rash to generalize from them. They should serve to arouse our attention to the possibility of retinal lesions being caused by the gonorrhœal poison. Bilateral dacryo-adenitis has also been reported in a case of gonorrhœa.

#### BIBLIOGRAPHY.

- Mackenzie: *Diseases of the Eye*, 4th edition.  
 Graefe-Saemisch, 1st edition, Förster, 1887.  
 Graefe-Saemisch, 2d edition, Grœnouw, 1901.  
 Astley Cooper: *Lectures*, 1824.  
 Panas: *Maladies des Yeux*, Vol. I.  
 Morax and Elmassian: *Trans. IX. Internat. Ophthal. Congress*, 1899.  
 Van Moll: *Trans. IX. Internat. Ophthal. Congress*, 1899.  
 Burnet, Norris and Oliver's *System of Ophthalmol.*, Vol. III.  
 Osler: *Principles and Practice of Medicine*.  
 Fagge and Pye-Smith: *Principles and Practice of Medicine*.  
 Fuchs: *Text-Book of Ophthalmology*.  
 J. Griffith: *Trans. Ophthal. Soc.*, Vol. XX.  
 White and Martin: *Genito-Urinary Surgery and Venereal Diseases*, 1898.  
 Warren: *International Text-Book of Surgery*.

MR. R. J. HAMILTON related a case of gonorrhœa, which at the end of three weeks was followed by severe irido-choroiditis. This was preceded by a rigor which Mr. Hamilton

attributed to septic absorption from a urethra previously damaged by strong injections. There was no arthritis or anything to justify the idea that the condition was one of general gonorrhœal infection. He deprecated the use of the word "metastatic," and preferred to look upon it as a pyæmic affection.

MR. R. A. YELD had recently analyzed 159 cases of primary iritis taken from the casebooks at St. Bartholomew's Hospital. He found 56 adult males among these in which there was no evidence of syphilis. Of these no fewer than 28, or 50 per cent., had suffered from gonorrhœa. Of these 28, 26 had a history of arthritis past or present. Finally, in 13 of these 26, the association of gonorrhœa, arthritis, and iritis was so close as to justify the term "gonorrhœal iritis." This was equal to eight per cent. gonorrhœal cases out of 159 cases of primary iritis. In another investigation of 40 severe cases of gonorrhœal arthritis, there were eight women presenting no iritis, and 32 men of whom five (15.6 per cent.) had iritis as a complication.

DR. A. DARIER said that many cases of iritis he had seen were due to gonorrhœal arthritis; he had frequently seen it follow ophthalmia neonatorum, and he thought that it was due to general infection. Possibly it followed rough treatment of urethritis with rupture of the mucous membrane or epithelium. He thought that some cases of iritis following metritis or endometritis were due to this cause.

MR. HENRY POWER thought it highly probable that secondary affections of the eye consequent on gonorrhœa might easily result from lesions of the urethra and required such lesions before they would occur. Considering the thousands of cases of gonorrhœa he thought secondary ophthalmic affections must be very rare.

MR. RICHARDSON CROSS said that the gonorrheal origin of iritis was one he always kept in mind, and he frequently found cases of this nature.

LIEUTENANT-COLONEL DRAKE-BROCKMAN said that he had frequently seen gonorrhœal ophthalmia with accompanying iritis in natives of India. The left eye was most frequently infected and iritis followed in that eye only. The gonorrhœal or gleet discharge was usually present at the time of the



ocular disease, though so little attention was paid to the primary disease that it was unlikely any surgical injury could have been inflicted at that period. He, however, thought that a lesion of the urethra, however produced, was likely to cause absorption and general infection.

MR. SYDNEY STEPHENSON mentioned two cases he had recently treated in which arthritis followed gonorrhœal conjunctivitis.

MR. DEVEREUX MARSHALL drew attention to the transparent exudation which was so often present in the anterior chamber in cases of gonorrhœal iritis. He did not know if the gonococcus was present in it, as he had never done a paracentesis in this condition.

MR. L. V. CARGILL said that in a very large proportion of cases of rheumatic iritis there was a history of gonorrhœa especially in men, and most of them showed the so-called "lens-like" exudation in the anterior chamber. He considered Dr. Darier's observations very interesting, and thought that we should now be rather between Scylla and Charybdis in scarifying the excessively chemotic conjunctiva of a gonorrhœal ophthalmia.

MR. G. W. ROLL thought there was a marked difference between gonorrhœal and an ordinary rheumatic arthritis. He asked Mr. Lawford if he had found the salicylates of any benefit in gonorrhœal iritis.

*Reply.*—MR. LAWFORD, in reply, said he had not seen females affected with gonorrhœal iritis, and he considered the salicylates of some service in these cases.

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#### PAMPHLETS RECEIVED.

"Leçon d'Ouverture du Cours," by F. de Lapersoune, M.D.

"Immature Cataract and Its Treatment," by G. E. de Schweinitz, M.D.

"The Evolution of the Ophthalmoscope and What It Has Done for Medicine," by S. Theobald, M.D.

"On the Measurement of the Intraocular Base Line, and the Size of the Meter-Angle," L. Howe, M.D.

## ABSTRACTS FROM MEDICAL LITERATURE.

BY W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

### A CASE OF ACUTE GLAUCOMA INDUCED BY COCAINE.

Simeon Snell (*Ophthalmic Review*, February) has used cocaine almost daily for seventeen years, and during that time has had it induce glaucoma in only one case. Two years previous to using the cocaine the author had examined the patient and found her eyes healthy and vision normal. A one per cent. solution of cocaine was used by her medical adviser to relieve an uncomfortable feeling in her right eye. This solution was used four times. Four days later Snell was consulted, and he found the tension + 2, pupil dilated, cornea steamy and vision reduced to ability to seeing fingers indistinctly at close range. The eye not improving under the use of eserine, for one day, an iridectomy was done with very satisfactory results.

### EMPLOYMENT OF SUPRARENAL EXTRACT BY THE OCULIST.

L. Thilliez (*Jour. des Sciences Med. de Lille*, Sept. 14) has gotten very satisfactory results from the use of suprarenal extract in ocular affections. He uses a solution composed of equal parts of distilled water and the dried suprarenal powder, carefully sterilized and preserved in glass receptacles holding one gramme. It is a brownish liquid and can be preserved indefinitely in a sealed tube. The profound anæmia which is induced lasts from one to two hours, according to the quantity used. Its vasoconstrictor action is greatest on the conjunctival vessels, but is also marked on the sub-conjunctival vessels. Its action is constant, and the author recommends its use in severe conjunctival injection, keratitis, iritis, and glaucoma.

### A CASE OF TUBERCULOSIS OF THE CONJUNCTIVA.

Howard F. Hansell (*Annals of Ophthalmology*, July) reports a case and reviews the literature of the subject. The causes are self-infection, metastasis and traumatism. The palpebral conjunctiva is most frequently affected. The tu-

bercules appear in the form of miliary ulcers, subconjunctival nodules resembling the granules of acute trachoma, hypertrophied papillæ and pedunculated tumors. Satler mentions lupus as one of the forms. For diagnosis tuberculosis of other organs and microscopic examination must be largely depended on, as tubercle bacilli are rarely found. Many cases are masked by trachoma, and others diagnosed as trachoma are tuberculous. The methods of treatment most strongly endorsed are excision and the galvano-cautery. When an operation is advisable the inflamed section and the healthy zone around it should be excised. Also the preauricular and other glands when they are involved. When an operation is not advisable the galvano-cautery should be used.

#### THE USE OF PROTARGAL TO PREVENT OPHTHALMIA IN THE NEW BORN.

J. Piotrowski (*Centralblatt f. Gynäkol.*, Aug. 3) considers protargal the best preventive of ophthalmia neonatorum. He first cleanses the eyes with a 30 per cent. solution of boric acid, and then uses a 10 per cent. solution of protargol. In a series of 1030 cases thus treated there was not one instance of blenorrhœa and only 1.2 per cent. of cases of secondary catarrh. A stronger solution increased the percentage of secondary catarrh.

#### ON EMBOLISM OF THE CENTRAL ARTERY OF THE RETINA.

C. Schweigger (*Archives of Ophthalmology*, September) questions the frequency of embolism of the central artery, doubt as to which was expressed by him more than thirty years ago; only in recent years has the anatomic basis been given for these cases of sudden blindness, by the demonstration of endarteritis with narrowing of the lumen, which accompanies various forms of retinal diseases. The view that sudden blindness with cloudiness of the disc and retina depends upon embolism arose only because the appearance that was previously termed infiltration was later termed embolism. Graefe's case teaches that embolism is not immediately followed by cloudiness. On the contrary, the narrowing of the retinal arteries from endarteritis must cause slowing of the blood current, which may produce infiltration.



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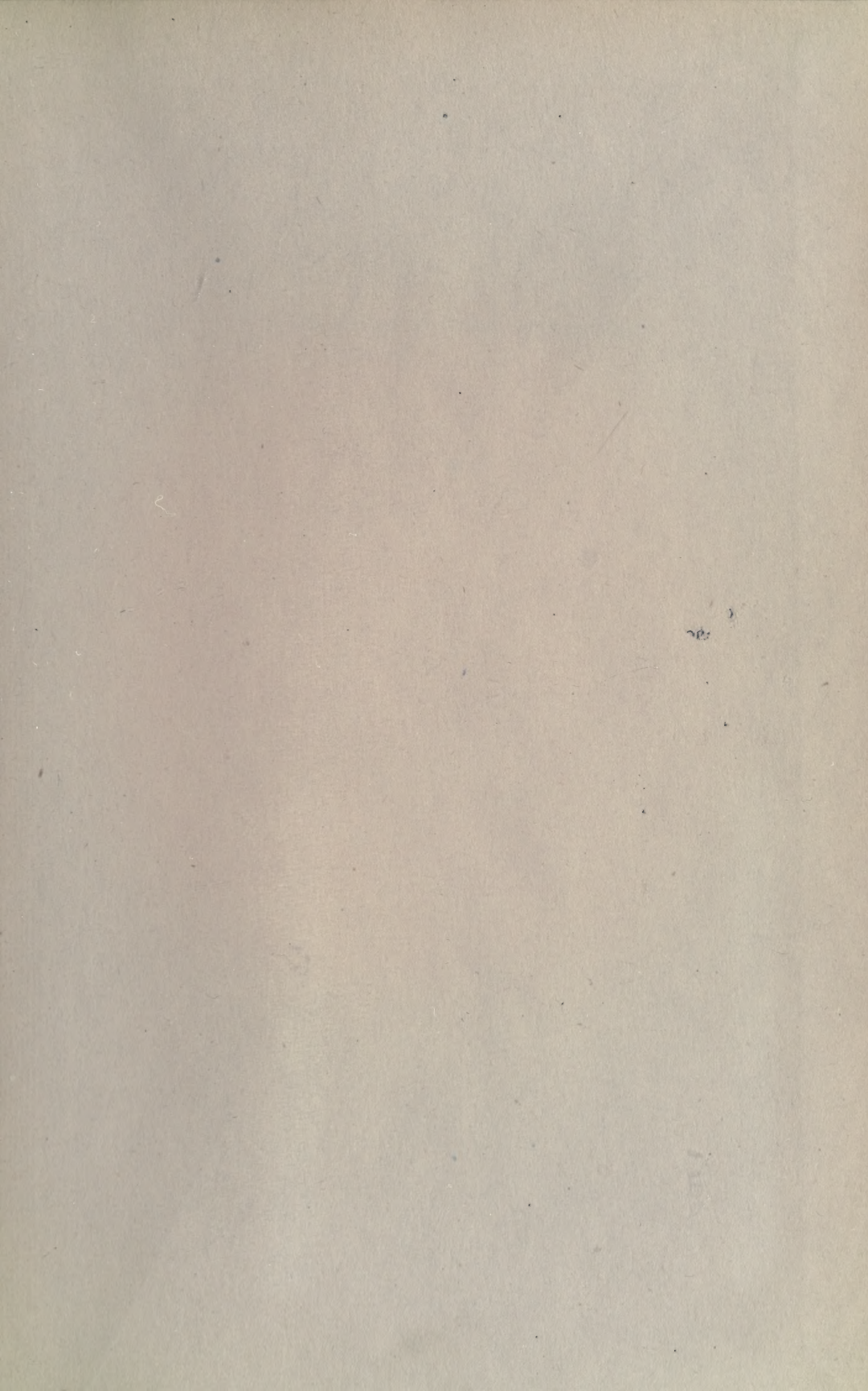
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